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THE PEOPLE'S ART: THE *CHICAGO TRIBUNE'S* TRANSFORMATION OF VISUAL JOURNALISM IN THE EARLY 20TH CENTURY

By

Julie Ann Goldsmith

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ABSTRACT

The People's Art: The *Chicago Tribune's* Transformation of Visual Journalism in the Early Twentieth Century

By

Julie Ann Goldsmith

Current practices in visual journalism rely extensively on color images to enhance credibility and engage viewers' interests in news stories. Despite the ubiquity of color in visual journalism today, little is known about its historical development in the first half of the twentieth century. This *Chicago Tribune's* pioneering role in pictorial color was nurtured under the leadership of publisher Robert R. McCormick from 1911 to 1955.

This cultural case history takes a sweeping look at visual innovations, extending from the origins of modern color with the *Chicago Tribune's* anniversary edition in 1897 to its visual art in World War II. Pictorial color art in news editorial, advertising, printing, cartooning, photography, and the reproduction of fine art are examined. The *Chicago Tribune's* seminal role in modern color took root on the influences of its nineteenth-century publisher, Joseph M. Medill, and the achievements of commercial printer Theodore Regensteiner and photoengraving inventor William Kurtz.

The *Chicago Tribune's* zenith came in the aftermath of World War I, when its employees, and those of its subsidiary companies, patented 92 inventions related to visual color. Two primary inventions changed the visual dynamics of newspapers. The color rotogravure press, which was invented in 1922 by *Chicago Tribune* printer John C. Yetter, advanced two great movements—

American Realism and American Expressionism—through its Sunday features. The color letterpress, invented in 1932 by *Chicago Tribune* printer Otto R. Wolf, modernized newspapers on weekdays. Wolf's invention made possible the emotive and symbolic use of colors, and resulted in a new, lean aesthetic, shaped by front-page editorial cartoonist Carey C. Orr. The language of color is examined through the works of two legendary *Chicago Tribune* artists, *Orr and* John T. McCutcheon.

The first color photograph simultaneously printed overnight with the accompanying news story was produced by the *Chicago Tribune* in 1939, using a custom-made camera with glass-plate negatives.

This case study of the *Chicago Tribune* examines the quest and the achievement of the democratization of color that culminated between the two world wars.

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FOR
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The families of two late Pulitzer Prize-winning editorial cartoonists, Carey C. Orr and John T. McCutcheon of the *Chicago Tribune,* illuminated this study: Orr's daughters, Mrs. Dorothy Jane Cook and Mrs. Henry Carson Jackson; grandsons, Kimberly Orr Cook and Carey Orr Cook; John T. McCutcheon's son, cartoonist Shaw McCutcheon, helped my understanding of both his father's and Orr's contributions to art. Thank you to printing expert Jim Bredensteiner of Bredensteiner Imaging in Indianapolis; Cathleen A. Baker of the University of Michigan Library for her paper expertise; and graphic designer Jane Palmer at the International Honor Society of Nursing.

I began considering how to continue the important spirit and art of the *Chicago Tribune* employees as far back as spring 2006, and sought ideas on multi-institutional partnering to secure the perpetuity of these rare artifacts. I want to thank my brother, Stephen Goldsmith, at Harvard University's Kennedy School for his invaluable advice. Most especially, I want to thank my mother, Marjorie Holmes, for her ability to distill complex ideas to their essences and my late father, Oscar C. Holmes, whose understanding of war intensified my appreciation of the *Chicago Tribune* employees' spirited art of color. To all of you, thank you.

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And life is Color and Warmth and Light
And a striving evermore for these
And he is dead, who will not fight;
And who dies fighting has increase.
—Julian Grenfell, English soldier (1888-1915)
Into Battle

On Mother's Day, 1917, readers of the *Chicago Tribune* opened their Sunday papers to a feature section with a painting, *In Time of War,* reproduced in color. The painting depicts an exhausted mother with a newborn cushioned on top of a narrowly folded red blanket. The blanket suggests the painting's dualistic intentions. The mother's head hangs downward in exhaustion toward the blanket. In the background, two older children sleep in a bed.[1] The blanket, and not the mother and children, is the central focus.

A narrow red blanket, like a stream of blood, signifies the father's absence and the mother's thoughts of birth and death in wartime. Far from the front lines, Scottish artist Thomas Faed in the nineteenth-century revealed the realities of war through this intimate interior. He conveyed his nation's call to colors, to the arms of war, as a crisis invoked by streaks of red.

The *Chicago Tribune's* unrelenting solemnity on Mother's Day occurred six days after the Germans bombed the transatlantic steamer *Lusitania* and killed 1,198 British and 124 Americans on May 7.[2] Five-thousand Chicagoans gathered in a rally to express their patriotism the night before *In Time of War* appeared as a section cover in the Sunday paper, delivered on the doorsteps of homes.[3] Twelve men from the *Chicago Tribune's* art and news staffs volunteered for

military service that week, nearly two years before President Woodrow Wilson signed orders for the draft.[4] Among the 25,000 men from Chicago who went to battle, 244 men worked for the *Chicago Tribune,* not including its war correspondents.[5]

The call for "colors" at the *Chicago Tribune* carried dual meanings, one arising out of patriotism, and the other out of its methods to depict reality with multiple hues of ink. The publisher employed 50 staff artists, who painted and drew for either the news or advertising—but not both.

Another painting, titled *The Colors*—created by the *Chicago Tribune's* chief editorial cartoonist, John T. McCutcheon—appeared soon after the United States entered World War I in 1917. One of the newspaper's most popular illustrations, *The Colors* was republished in color throughout the first part of the twentieth-century.

The *Chicago Tribune's* visual language of color, expressed through various forms of new art, fine art, and illustrations, contributed significantly to its media rise. The windows to its Midwestern soul opened through pictorial color. McCutcheon, born in rural Lafayette, Indiana, in 1872, divided his painting into four horizontal panels, showing how a single wheat field undergoes changes with the progression of war. Rows of golden wheat transform, not by the turning seasons, but war. Wheat stalks are seen as white crosses in the final panel.

> Gold and green are the fields in peace.
> Red are the fields in war.
> Black are the fields when the canons cease.
> And white for ever more.[6]

In Time of War and *The Colors* are from an extensive collection of historical *Chicago Tribunes* that document innovations in pictorial graphics from 1880 to 1949. The reproductions represent its long, visual discourse in color that spanned decades of social change and came into full fruition in the Great Depression. The *Chicago Tribune's* pervasive use of news color became evident after Michigan State University received a donation of 5,500 pages of historical newsprints in 2006. These illustrated *Chicago Tribunes* offered rare evidence of modern color generally attributed to news publishing in the late1980s.

Among the early twentieth-century newsprint originals were works by America's leading artists, such as Grant Wood, Thomas Eakins, and Mary Cassatt, and by rising regional painters such as Richard Chase, whose love affair with Chicago saw grace in construction girders. The *Chicago Tribune's* color news cameras brought detailed images of steel mills, movie stars, and urban fires before Kodak color films were invented for professional use.

Color advertising art brought readers flawless views of consumer goods with retouched realism of Campbell's light red tomato soup, Ivory soap's sparkling clean baby with tender pink cheeks, Chevrolet's emerald-green touring car, and luxurious Paris couture in the changing hues of the seasons.

The *Chicago Tribune's* culture of color offered disparate images for more than half a century.[7] The central question of this research asks: What linkages explain five decades of color in the *Chicago Tribune,* despite their seemingly disconnected images? In doing so, a common story might emerge, derived

particularly from analyzing the processes that gave rise to printing the pictures, and partially from studying the subject matter.

After World War I, the *Chicago Tribune's* profuse color use in news graphics, advertising, and fine arts contributed to a rapid rise in the largest daily circulation in the nation (except for a subsidiary it founded to bring readers even more pictures, the tabloid *New York Daily News*).

The purpose of this research is to investigate the *Chicago Tribune's* visual techniques and the cultural origins of color that magnetically attracted readers. The research focuses on examining the exemplars of its visual color and conducting a historical case study.

Just as current media companies are major economic drivers, by the 1930s, printing was the sixth largest industry in the United States. Chicago led the nation in color publishing, and the *Chicago Tribune* led the nation as the voice of modernity with color techniques. In a speech to editors, Robert R. McCormick, publisher of the *Chicago Tribune* from 1911 to 1955, warned newspapers of the importance of color to survive the Great Depression.

> When houses are in colors within and without, when furniture and clothing and everything else made rivals the rainbow, the newspaper must take notice. The newspaper printed in somber black has lagged behind the times.[8]

This study's rationale stems from the lack of research on visual color in newspapers after the Gilded Age. The "Yellow Kid" comics in Joseph Pulitzer's *New York World* and in William Randolph Hearst's *New York Journal* have been widely studied, due to their influential roles in perpetuating yellow journalism in the 1890s. Little is known about newspaper color across the next half-century.[9]

This study helps to narrow the gap in newspaper knowledge, subsumed by the advent of television.

Full-color publishing was a costly investment, and following yellow journalism, readers were poised to doubt a publisher's veracity if multiple hues of inks were used. The *New York Times* ended its publication of a black-and-white pictorial magazine in 1899, because illustrations were associated with the base appeals of yellow journalism. The *New York Times* focused on news writing:

> The publication has served its purpose. It seems to *The Times* that the collection and printing of news with such editorial treatment as the news may demand or permit, is a calling worthy to engage all the ability and energy which its conductors possess.... It thinks it will accomplish its object by issuing on Sunday such a number of pages as the full representation of all the news may demand, and it is confident its readers will approve the innovation it makes.[10]

As far back as June 10, 1897, the *Chicago Tribune* reproduced scenic illustrations of city life and American history by using color half-tones, a technique rarely used in the nineteenth-century. Amid the culture of yellow journalism—a culture where sensationalism drove news sales—the *Chicago Tribune* took a difficult route to success: one that relied on comparatively reasoned news stories with colorful art and illustrations, which made it the most widely read newspaper in the nation by 1922.[11]

The newspaper industry's materials and news needs differed from magazines in key ways. For publication of overnight news, dailies required high-speed web presses with revolving cylinders that could spin out a complete newspaper in only fractions of a second. A magazine with color cover art and engraved pictures with the inside text commonly took from three weeks to three

months to publish and used slow, flat-bed presses into the early twentieth-century.

In keeping with Jacksonian traditions of the penny press, newspapers have been published on inexpensive grades of paper in order to maximize the number of citizens in a democracy who can afford the price of the news they need to be self-governing. Magazines, with their specialized and elite audiences, traditionally have relied on highly finished luxury papers with different printing technologies and methods that can be applied with longer amounts of time between deadlines. By contrast, newspapers have a traditionally distinct set of needs based on shorter news deadlines, lower prices per copy, increased economic diversity, and low-cost newsprint—all of which affect the mass production of color and the choices of the editorial content.

Pictorial Color in Magazines

As early as 1892, American publishers inserted color pictures into magazines, but these were printed separately and not impressed on paper with their texts, according to one of the most influential color experts of that era, Theodore Regensteiner of Chicago. Photographers, especially, included picture inserts in their industry journals. The first three-color magazine cover was printed in 1896 by Regensteiner, who used the color photography method of Louis Ducos du Hauron and the color photoengraving method of William Kurtz, to publish the *Christian Herald*. One year later, Regensteiner used a similar process to publish the *Chicago Tribune's* anniversary edition.[12] The *Saturday Evening Post* generously began using color on its covers, beginning as early as

September 30, 1899, when it reproduced in three-color a painting on a ship at sea.[13]

A 1907 color photography invention called "autochrome" associated artistic cultural landscapes with *National Geographic's* brand early in its history. It is worth noting that as early as 1910, *National Geographic* featured color photographs, but these were hand-painted, and the circulation was limited to several hundred geographers. Louis Jean Lumiere and Auguste Marie Nicolas Lumiere, who invented motion pictures, also invented the autochrome process for still photography. It was the first commercially available color process, according to color photography historian Pamela Roberts. Autochromes used glass plate negatives and were "problematic" and costly to produce, Roberts noted.[14] In 1907, *L'Illustration,* a French magazine, published autochromes taken by Leon Gimpel, and the following year, Edward Jean Steichen and Alfred Stieglitz published their autochromes in *Camera Work 22* and *American* Century, respectively. *National Geographic* magazine published more than 2,000 autochromes between 1914 and 1938, but these color photos were printed on non-glossy paper, "losing all the glowing, glassy translucency and personal intimacy of the original," according to Roberts.[15]

While photography with the autochrome process was noted for its luminosity, translucency, and vivid colors, the ability to make one print differed greatly from the mass production of thousands, and perhaps millions, of copies. Harry A. Groesbeck, Jr., a nationally regarded photoengraver of that era, also printed autochrome photographs in 1911.[16] He wrote what is considered a classic

text, *The Process and Practice of Photo-Engraving*, in 1924 of that period. The process of autochrome photography sensitizes the glass plates for the three different primary colors with dyed grains made of potato starch. Groesbeck noted that autochromes were less successful when mass-produced than when individually printed, but their use was superior to hand-painted color pictures:

> The reproductions are usually very "grainy" in appearance and no satisfactory means has as yet been found to eliminate this trouble. By extremely skillful manipulation in making the color separations and in the subsequent finishing operations, interesting results are often obtainable. They have the distinct advantage of being direct color reproductions and are consequently more accurately photographic, both as to image and colour, than hand-made originals or hand-coloured prints.[17]

In the 1890s, according to Louis Walton Sipley, director of the American Museum of Photography, the city of Chicago was the most active center of color photoengraving methods for periodicals and commercial printing in the nation. The reason that color photography development was

> far behind photo-mechanical color processes during the ensuing years may have been due to lack of public appreciation of the use of color for commercial purposes, or it may have been due to the lack of proper printing press equipment for making the use of color a not-too-difficult undertaking.[18]

Periodicals have relied on many processes to reproduce color pictures, ever since journals in London began printing art in the mid-eighteenth-century.[19] Consequently, information that identifies the printing method and characteristics of the quality of the work, length of time it took for printing, and its practicality are all essential components in the development of color pictures.[20] The subject of this study is the mass production of modern full color in newspapers. "Modern" refers to the nuances of lights and shadows that people naturally experience

when they absorb sensations of sight, which fall upon the eyes in a wide range of tones and not in unyielding blocks of flat color.

Newspaper Inventions

To begin to identify the unique characteristics of the *Chicago Tribune's* color images, this research undertook a patent search for inventions that might have been filed by the publisher, its subsidiaries, or its employees after 1880, when the *New York Daily Graphic* published the first halftone in a newspaper (Appendix A).[21] Stephen H. Horgan's significant halftone invention used a photo-lithographic process, which was among a series of discoveries for the reproduction of pictures in periodicals.[22]

The patents search for the *Chicago Tribune* found 94 patents related to printing. Additional patents identified inventions for new use and reuse technologies for printing byproducts.

Two of the *Chicago Tribune's* patents were primary: the color rotogravure press (Appendix A: #US1504409 filed in 1920 and approved in 1924), and the color letterpress (Appendix A: #US1784037 filed in 1925 and approved in 1930). Many of the patents related to improvements on some aspect of these printing presses. Others were for new technologies related to newsprint, cameras, photo transmission, engraving plates, folding machines and pressroom designs to deliver an incredibly complex printing product with tight deadlines.

Justification

Current visual journalism techniques rely extensively on color images to involve viewers in news stories. The ubiquity of color images in news—print,

digital, and television—is an indication of how much citizens have come to expect it in storytelling. Color images extend to viewers a sensory experience that simulates the world as they naturally know it. The synthetic artifice of news decreases by including color images that deepen its affinity to reality, and its believability to viewers. While pictorial color pervades contemporary media and news products depend on this idiom to render human experience credible, little historical knowledge has been developed on this phenomenon.

Consequently, this study examines a news pioneer's development of pictorial color methods, the *Chicago Tribune*, with the intent of filling an historical gap in visual journalism knowledge. The period of interest extends from 1897, overlapping with the publication of the "Yellow Kid" comics in the New York newspapers, to America's entrance in World War II. The *Chicago Tribune's* most fervent period of invention occurred between the two world wars. The methodology applies a cultural approach to understanding the historical origins and context of the *Chicago Tribune's* use of pictorial color.

This study is not a technological history of newspaper presses. Instead, the focus has been placed on what these inventions say about the culture of one newspaper and the meanings that can be imported from the employees' collective creative strengths.

Art historian Andre Malraux maintained that color reproductions presented a new form of life experience and, with that, new freedoms. Reproductions cast away elitism and became "museums without walls" that brought art to the people, he wrote. They helped seal impressions of new styles,

fashions, and artists. Mass reproductions in color not only offer a news experience to one person, they immortalize the shared feelings of an era and culture via publication, he wrote. History defines cultures by an aesthetic style—Greek architecture, French Impressionism, American Realism, the Jazz Journalism.

> Nothing conveys more vividly and compellingly the notion of a destiny shaping human ends than do the great styles, whose evolutions and transformations seem like long scars that Fate has left in passing, on the face of the earth.[23]

The curators of museums represented the elite "schools" of thought, comprised of individuals with shared aesthetics, but art that was freely reproduced opened up the possibilities for new expressive forms.[24] Newspaper art editors were not the counterparts to curators, but rather counterpoints. Dailies exposed their professional decisions to a broad swath of tastes, and critical readers could easily reject the paper and switch consumer preferences.

Art, advertising, and news commingle on the news pages and influence the aesthetics and the readers, instead of being isolated entities that stand alone. By the end of World War I, the scientific approach to public persuasion had taken hold in newspapers. The same year that the *Chicago Tribune* rose to the top in circulation, Walter Lippmann published the seminal treatise on persuasion, *Public Opinion*. The news media forms "pictures in our heads" that we trust, which seem utterly real, even when they are false, he wrote. The pictures that readers see, "pictures of themselves, of others, of their needs, purposes and relationships, are their public opinions." [25]

Pictures are systemic to the formation of public opinion, Lippmann observed. The newspaper creates a unique pseudo-environment for people, who form their decisions based on their perceptions of reality seen on its pages. In 1916, the average business professional in Chicago spent no more than 15 minutes a day reading a newspaper.[26] Lippmann's interest in the role of pictures in public persuasion addressed the reader's brief allocation to news needs:

> Pictures have always been the surest way of conveying an idea, and next in order, words that call up pictures in memory. But the ideas conveyed are not fully our own until we have identified ourselves with some aspect of the picture.[27]

Lippmann's attention to pictures, at the same time the *Chicago Tribune* was expansively using color art, shows a trend rapidly building across America in the inter-war period—the mass production of mediated ideas and values.

The visual pleasure of color is a universally shared experience. Yet despite this common quality, color still feels luxurious. From the inception of color theory to its first practical application by the *London Illustrated News* in 1855,[28] more than 2,000 years passed. In the short history of color printing in newspapers, the *Chicago Tribune* held a primary role in pictorial news color.

In the lead-up to America's entrance in World War I, a German embargo on inks and dyestuffs threatened the economies of the Allied nations, including the United States in 1914. The *Chicago Tribune's* message in its use of color art stood all the more powerful. Germany's world monopoly on dye manufacturing left the world visually bleak and metaphorically appropriate in time of war. The dye chemicals for clothes, wallpaper, carpeting, car paints, hair dyes, paint, and

printer's inks derived from Germany. The U.S. Bureau of Engraving relied solely on German inks, including black, for currency, securities, and postage stamps.[29]

The elegance of common necessity and the luxury of color converged into a single unified idea at the *Chicago Tribune* in the first part of the twentieth century. The democracy of color took hold.

Overview of Chapters

Chapter II explains the background and relevant literature related to the development of color printing and its introduction into periodicals. The philosophies and theories of the ancient Greeks guided the theoretical development of color and its application for building empathetic citizens. Chapter III details the research methodology for building a cultural history case study on the *Chicago Tribune* color innovations. Due to the lack of knowledge on pictorial in newspapers in the first part of the twentieth century, a diversity of fields was studied in order to ascertain the social needs and forces affecting the *Chicago Tribune.* Chapter IV explains the influence of the *Chicago Tribune's* nineteenth-century publisher, Joseph Medill—printer, lawyer and mayor—on its twentieth-century publisher, Robert R. McCormick, who spurred color printing. Chapter V explores the origins and impact of John C. Yetter's invention of the color rotogravure press on the reproduction of fine art, which enabled the democratization of an elite enjoyment. Chapter VI gives attention to the nature of the content of the images and the effects of color rotogravure on society. Chapter VII examines the *Chicago Tribune's* democratization of color in its advertising, when it was previously the domain of elite magazines, due to the

expensive papers and length of time for printing. Chapter VIII examines the *Chicago Tribune's* invention of the color letterpress by Otto R. Wolf, and its influence on color editorial cartooning. The *Chicago Tribune's* editorial cartoonist, Carey C. Orr, streamlined his drawing style for color and influenced the aesthetics adapted by other cartoonists. Little is known about the artist, even though he won a Pulitzer Prize for cartooning and taught or mentored the nation's most famous popular creators. Chapter IX looks at the *Chicago Tribune's* use of color photography and the democratization of news color. The achievement of overnight color pictures to run simultaneously with news stories was a stunning achievement before color film was invented. Chapter X summarizes how, what, and why the *Chicago Tribune* aspired to renew the art and science of journalism with pictorial color. The Americanism that arose after supremacy in World War I undergirded the spirit of invention that modernized newspapers with color.

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16. Louis Walton Sipley, *A Half Century of Color*, 48.

17. Harry A. Groesbeck Jr., *The Process and Practice of Photo-Engraving* (Garden City, New York: Doubleday, Page & Company), 197.

18. Louis Walton Sipley, *A Half Century of Color*, 17, 30.

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21. Frank Luther Mott, *American Journalism: A History of Newspapers in the United States through 250 Years, 1690 to 1940* (New York: The Macmillan Company, 1941), 501.

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27. Ibid., 105.

28. Bamber Gascoigne, *Milestones in Colour Printing 1457-1859: With a Bibliography of Nelson Prints* (Cambridge, UK: Cambridge University Press, 1997), 52.

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CHAPTER II: THE HISTORICAL BACKGROUND OF COLOR PRINTING

This inquiry of the *Chicago Tribune's* innovations in pictorial color that modernized news, advertising, and fine art images in the first half of the twentieth century draws on the literatures of diverse disciplines. This scholarly literature review begins with philosophies of color that preceded modern printing, followed by historical achievements in newspaper color up to and including the twentieth century.

Information has been extracted from a broad range of scholarly disciplines, including printing, journalism, sociology, art, history, and technology, to understand the cultural contexts that gave rise to color mass-produced in newspapers. The mass production of full-color images in newspapers differs from that of other publications, due to the unique needs for high-speed printing to meet daily or weekly deadlines; low-cost printing to provide the largest number of citizens access to the news they need to be self-governing; pulp-paper printing to use the least expensive substrate; and mass production to deliver images and words with effective consistency.

Philosophies of Color

Science and subjectivity have ideologically commingled to evolve multiple interpretations of the term color, ever since the ancient Greek philosophers began documenting their observations of nature. In his *Dialogues,* Plato recorded the first theory of colors in 360 B.C., which was introduced by Timaeus of Locri to describe the sun's infinite variety of hues and their effects on human health. A

Pythagorean philosopher, Timaeus held that the laws of probability would provide consistent color combinations through a triangulated formula, which remained at the theoretic stage. He explained that a relationship among three equal light waves could elicit color changes, such as "flame" created with auburn and dun. And he described a process known as "tinting," which lightens colors with the addition of white:[1]

> Red when mingled with black and white becomes purple, but it becomes umber when the colors are burnt as well as mingled and the black is more thoroughly mixed with them. Flame color is produced by a union of auburn and dun, and dun by an admixture of black and white; pale yellow, by an admixture of white and auburn. White and bright meeting, and falling upon a full black, becomes dark blue, and when dark blue mingles with white, a light blue color is formed, as flame-color with black makes leek green.[2]

In the above, Timaeus treated "black" and "white" as properties of color and not as we scientifically know them today, respectively, as the absence of, or sum of, all colors in the spectrum. He extended his suppositions on color separations and mixtures to theorize that light affects colors inside human bodies, generating blood and bile, and influencing health and emotion. Whether light is perceptible, or imperceptible and transparent, people exhibit the effects of the sun's colors mentally and physically, he argued. Timaeus wrote that the senses of sight and touch were similar, for both represented "a power akin to that of hot and cold bodies." For example, a person's liver could produce "colors like bile" that could lead to painful contractions and "loathing," or the sight of an aesthetically harmonious image, such as art, could create pleasure, Timeaus explained:

> When some gentle inspiration of the understanding, pictures images of an opposite character, and allays the bile and bitterness by refusing to stir or

> touch the nature opposed to itself, but by making use of the natural sweetness of the liver, corrects all things and makes them to be right and smooth and free, and renders the portion of the soul which resides about the liver happy and joyful.[3]

According to Timaeus, an image's power derived from a systematic series of interactions in nature, and not by any irrational forces sated on the fakery of magical icons or amulets. Timeaus' "rational" theory in the *Dialogues* presented the first scientific explanation of how light waves altered human disposition and thought, despite the sun's intangible glow—a substance that could not be held or bottled. This property could be defined only through the sense of sight.

Of all senses, sight presented the greatest force for enhancing intellectual skills and increasing human good, Timaeus wrote:

> For had we never seen the stars and the sun, and the heaven, none of the words which we have spoken about the universe would ever have been uttered.[4]

Grounded ideologically in Platonic theory, color elicited interwoven emotive, intellectual, and physical experiences of people and their environments. A decade later, Aristotle took a special interest in color physics and aesthetics, with ideas for advancing citizenship by educating youth through art. He observed the phenomena of rainbows and halos and delineated the first principles on light reflections, which were published in his book *Meteorology.*[5] Aristotle explained that a rainbow forms on dense vapors in the atmosphere after a rain and deduced that different mediums act as vapors and also can reflect colors, such as mirrors, smooth-surfaced objects, and pools of water. In addition, environmental conditions could change the shape and color of light, he found; for example, rainbows change in size at different hours. They diminish in size at

sunset and enlarge as the sun rises, he wrote. Thus, Aristotle believed the shape and color of light can be altered by 1) the medium and 2) the conditions surrounding it.

According to Aristotle, color is not a fixed state in nature but a mutable form—the sun's glow offers more than one shade of yellow—and light varies by its medium, i.e., vapor or clouds:

> When there is a cloud near the sun and we look, it does not look colored at all but white, but when we look at the same cloud in water it shows a trace of rainbow coloring. Clearly, then, when sight is reflected it is weakened and, as it makes dark look darker, so it makes white look less white, changing it and bringing it nearer to black.[6]

Aristotle identified the sequence in a rainbow's colors: a red arc on the outside closest to the sun, green in the middle, and purple closest to the earth, noting that no more than two rainbows formed in the same area at one time. A faint outer rainbow reversed the colors of the interior bow. "These are the only colors that painters cannot manufacture," he wrote in *Meteorology,* conceptualizing the first principles of primary colors. Moreover, he laid the groundwork for future knowledge on yielding secondary colors when he noted that the red arc juxtaposed next to the green arc gave "an appearance of yellow."[7]

Reflected light alters man-made dyes, as well as nature, Aristotle wrote: A purple thread embroidered on a piece of white wool looks different from the same thread on black wool; a white cloud turns yellow when a rainbow's red arc fades.[8]

The exterior sensations of color in art brought viewers closer to the realistic ideas and emotions their creator intended to convey, Aristotle argued.

Artificial pigments mirror reality. "The affections produced are similar though they lack a name; for art imitates nature," he wrote, comparing changes to human emotions and foods through cooking to the warmth engendered through colors in art works.[9]

Aristotle emphasized the individualized, subjective perceptions of artistic color; yet paradoxically, he found the social value in its ability to more deeply connect people to reality. In *The Politics of Aristotle,* he wrote that the purpose of education is to build good citizens, and art—music, painting, sculpture, and poetry—enjoyed by youth can increase empathy for others in a democracy. Artistic education solidifies the people's civic bonds and respect for individual circumstances, suffering, and joys. The interests of the state were to perpetuate it: "The citizens of a state should always be educated to suit the constitution of their state" to assure permanence.[10] Art that cultivates the personal character and mental acuity of citizens holds a central function for advancing society. "The shapes and colors presented by visual art are not representations of states of character: they are merely indications," he wrote.[11]

The use of colors in art works fostered identification with realistic situations and emotions, and expanded a person's awareness of others, forgoing the need to totally rely on experience to understand others in society. A tragic painting of a maternal death, or soldiers slain in battle, can heighten awareness of loss without the need to endure the same life crisis. "Now to acquire a habit of feeling pain or taking delight in an image is something closely allied to feeling pain or taking delight in the actual reality," Aristotle wrote.[12]

Art as a recreational activity allowed youth to emotionally grow and experience a multitude of emotions. Even sad feelings carried some form of pleasure in a synthesized artistic event and shielded people from experiencing harmful realities in other ways. The dichotomy between seemingly real and unreal events enhanced the acquisition of knowledge—none of which Aristotle found more important than habituating youth toward "right judgments"[13] and concerns for others in society.

The ancient Greek theorists sustained their authority up until the Renaissance, when Sir Isaac Newton discovered a band of seven colors in white light and modernized science, wrote Louis W. Sipley, director of the American Museum of Photography, in *A Half Century of Color*.[14] Using a glass prism, Newton divided light into a rainbow of continuous hues—red, orange, yellow, green, blue, indigo, and violet—and recombined them with another prism. Until Newton recombined the separated rays into white light, the discrete colors were attributed to properties within the glass. Sipley explained what Newton found in white light:

> At the ends were blue-violet and red, and between, progressing from the red end, were orange, yellow, green, blue-green, and blue. Each color blended with the colors adjacent to it in such a manner that no sharp edge was noticeable as a dividing line between any two colors. This band of colors produced by the dispersion of white light was named the spectrum.[15]

Newton found white light to be pure—separating and recombining light did not alter the rays' shapes and colors—wrote Pamela Roberts in *A Century of Colour Photography*: "From this finding—that light is the source of all color—

comes our basis for understanding the concept of color and thus color photography."[16]

According to Roberts, science advanced after Newton's 1666 seminal experiment. His contemporary, Christiaan Huygens, found that light moved in wavelengths, with red as the longest and violet the shortest. Huygens described how human perception takes place through receptive nerve fibers in the retinas of eyes that are sensitive to red, green, and blue light. Consequently, light is individually experienced, yet it can also be objectively quantified.[17]

Joseph S. Friedman wrote in his *History of Color Photography* that Newton invalidated Aristotle's view that white and black were single colors.[18] Newton's discovery of three main primaries and seven visible hues ran contrary to Leonardo da Vinci's view. Based on his work with pigments, the Reformation painter and scientist mistakenly proposed that red, yellow, green, blue, white, and black were primaries, Friedman explained. Scientists had not yet found that there were theoretic distinctions between mixing light colors by adding different wavelengths and mixing pigments by subtracting different hues. "We may therefore infer that the seventeenth and eighteenth century scientists did not distinguish between the additive and subtractive colors,"[19] Friedman wrote.

These early failures of attempting to mix colors in painting that matched reality foreshadowed the difficulties that modern printers would experience in reproducing pictures.

In *Optics*, Newton's mathematical treatise on light, he reported differences in the reflective qualities of various mediums, i.e., paper, combs, soap bubbles,

or red liquor in a cone-shaped drinking glass.[20] Newton found that a painter's leaded pigments applied to white paper decreased its luminescence, compared to shining light rays on white paper:

> If red lead, for instance, and a white paper be placed in the red light of the colored spectrum...the paper will appear more lucid than the red lead, and therefore reflects the red-making rays more copiously than red lead doth. And if they be held in the light of any other color, the light reflected by the paper will exceed the light reflected by the red lead in a much greater proportion. And the like happens in powders of other colors.[21]

Newton mathematically computed variations in colors by their wavelengths and argued that primary colors have musical equivalents in sound. The vibrations of wavelengths of red, yellow, green, blue, and violet "are to one another very nearly as the sixth lengths of a (musical) chord, which sound the notes in a sixth major, sol, la, mi, fa, sol, la."[22] In other words, the physics of sound waves and light waves share relative elements.

Just as the physical science broadened, so too, did subjective knowledge. Sipley, Roberts, and Friedman all cited Thomas Young of England and Helmholtz from Heidelberg, Germany, for finding that human color perception involves both psychological and physiological processes.

Because the subject of this research is color, understanding the definitions and various meanings of the term will benefit the principal knowledge about how and why the *Chicago Tribune* was effective. The *Chicago Tribune* was known for its conservative editorial tone, yet the appetite for color pictures may have been far greater than the cognitive discord experienced by people who did not agree with its views.

Definitions of Color

The current literature on color conceptually integrates the long journey of light discoveries and combines these into the denotative and connotative definitions.

The term "color" derives from the Greek word "chromos," used in music to describe the chromatic scale with 12 ascending and descending half-tones, according to *The Concise Oxford Dictionary of Music.*[23] The same phraseologies applied to the incremental tones and harmonic compositions of music are also commonly used to describe visual color.

Yale University color expert, Faber Birren addressed the duality of the sensory experience and the linguistic usage in his book, *The Story of Color.* Alexander Scriabin's *Prometheus: The Poem of Fire, Op. 60,* composed for piano and orchestra, included a special organ that activated different color lights as the respective keys were played. Scriabin and his fellow composer, Rimsky-Korsakoff, saw colors when they heard music. "Color and music have much in common," Birren wrote, "Both strike emotional chords—and human emotions have a surprisingly universal quality about them." Walt Disney's *Fantasia,* a 1941 animated movie inspired and accompanied by symphonic music, captivated American audiences with its synchronistic pictorial dramas.[24]

A classic textbook for printers written by Kenneth F. Hird, *Offset Lithographic Technology,* addresses the complexities of color in his definitions.

> Color is light and light is a form of energy that travels in waves. Therefore, our perception of color is determined by the type of light source, behavior of the light (refraction, reflection, scattering, or interference), and the sensitivity of the viewer—be it man or machine.[25]

Color is perceived through the eye's twelve million rods that discern black, white, and gray, and seven million cones that chemically mix three primary hues, according to Hird. "Even the smallest amount of radiant energy stimulates" a person's retinas, he wrote. The perception of color is affected by the quantity and quality of light—for example, directly transmitted light, or indirectly transmitted light off an object, such as paper.

The *Encyclopedia of Imaging Science and Technology* defines "color" as an "attribute of visual sensation and the color appearance of objects depends on three components that can be thought of as a triangle," depending on 1) a visible source of electromagnetic energy to initiate the sensory process; 2) an object to be imaged by the eye; 3) an observer.[26]

The Oxford English Dictionary lists 56 different ways in which the word "color" is commonly used as a noun and verb, including the term "off-color" remark. Colors define experiences either by their superficial qualities of appearance or by deeply held emotions and beliefs. The dictionary addresses the subjective element within the first usage:

> The particular color of a body depends upon the molecular constitution of its surface, as determining the character and number of the light-vibrations which it reflects. Subjectively, color may be viewed as the particular sensation produced by the stimulation of the optic nerve by particular light-vibrations.[27]

Color is used interchangeably with "hue" to denote a specific quality of visible light, and it also is used in the figurative sense to tinge a remark with emotion, connoting falsity or concealment. The long etymological association with pure qualities of light rays gives the word "color" virtuous connotations when

representing a particular group, emblem, flag, military unit, or nation, such as "to come out in one's true colors," or "to go out with colors flying and drums beating."[28]

Definitions of color encompass physical characteristics of light, the human capacity to perceive different wavelengths, and individual and commonly shared meanings. Color refers both to superficial appearances resulting from surface reflections and intrinsic emotions.

Color Printing In Newspapers

Turning from the theoretic development of color to the application for printing uses, a transformative period was marked by centuries of dormancy until the nineteenth century. Since the mass production of full-color images at the *Chicago Tribune* is the topic of this study, a review of the landmark printing antecedents follows.

Hand-painted colorings in literature and fine arts were the norm long after the invention of the first printing press in 1446. A decade after his invention, Johannes Gutenberg applied red ink to decorate capital letters when he printed the *Bible*, the first book published using moveable metal type, as British printing expert Bamber Gascoigne described in his *Milestones in Colour Printing.*[29] By 1487, Ehrard Ratdolt in Germany etched a picture of a bishop into four separate wood blocks to print a frontispiece of a religious book. He inked each wood block separately in black, yellow, olive-brown, and red, and overlaid the colors as he repeated the printed impression four consecutive times. Gascoigne wrote:

> Color printing was slow and expensive. An extra four passages through the press, with all the inking of the blocks, would cost much more than a

person roughly applying some patches of paint; and this would continue to be the economics of the case until the nineteenth century.[30]

In the 16th century, the color prints continued to be etched in wood blocks, and ink tints were applied to give images an illusion of original drawings with watercolors added. Johannes Teyler of Holland created the multicolor intaglio method that carved pictures beneath a hard surface. He used a single copper plate—not four—and pushed different ink colors into the crevices of different areas of the picture. The process, à la poupée, wrapped fabric at the top of a stick to look like a doll, which the printer used to dab ink into the crevices. The printer cleansed the surface of the plate, left the ink in the crevices, placed paper over it, and rolled a press across.

In Britain, engraver Elisha Kirkall successfully used a new technique to print a collection of botanical art works. He varied the depths of the carvings beneath the surfaces of the copper plate, and the changes in depths created different intensities of ink color, Gascoigne noted. A single hue in one picture varied from pale green to dark green-black and presented the illusion of multiple colors.[31]

German engraver Jakob Cristof Le Blon created a four-color intaglio process with copper plates. This process achieved middle tones in pictures that could contour images with depth and perspective. The method, called mezzotint, roughened the surface of the metal until it looked like sandpaper with "toughs and peaks in the metal," according to Gascoigne in *How To Identify Prints.*[32] King George I awarded Le Blon the royal patent for color printing, which was primarily directed to the reproduction of oil paintings by Italian masters. A large investment

by financial speculators established a Picture Office with mezzotinters, engravers, printers, colorers, and frame-makers, which went bankrupt shortly after its establishment. Le Blon's color art works represented significant advances, according to Gascoigne:

> Their quality is varied, but his reputation is secure as the originator of the three- or four-color method which was eventually to prove, in its twentieth-century form, the basis of all commercial color printing.[33]

Art historian Antony Griffiths in *Print and Print Making* noted that Le Blon's oil paintings never fully succeeded because of impurities in the inks and the printer's inability to match different hues.[34] Developing sufficient primary colors in pigments continued to slow the progress of color printing in future decades. Le Blon chose blue, red, and yellow primaries, when "they should have been cyan, magenta, and yellow," Griffiths wrote, because they were man-made pigments, not pure light. While pigments reflect light, they are not comprised of light. The miscalculations in formulating the most sensitive pigments to use for light filters and inks seriously held printers back, for the end results often appeared laughable or unreal. Finding formulations that could record colors as natural as life was the goal.

By the next century, the mezzotint process was widely used for the reproduction of portraits and paintings in black and white, and it was "given a new lease on life when steel was adopted as the support" by itself or in combination with copper plates to extend durability for long print runs, according to photography historian Anthony J. Hamber in his book, *A Higher Branch of the*

Art.[35] The use of steel in place of intricate hand work increased mass production and derided its value to the elite.

The invention of the lithographic method in 1798 by Alois Senefelder in Bavaria became the basis for today's most widely used mass-produced process of color printing, known as off-set lithography.[36] With the hope of printing in relief, Senefelder failed in his use of limestone for this purpose, but he found a new way to print on a flat surface. Gascoigne described Senefelder's landmark finding:[37]

> He made the much more revolutionary discovery that it is possible to print from a flat surface. The process depends on the antipathy between oil and water. In over-simple terms, Senefelder discovered that if greasy marks are made on a stone, and the stone is then wetted, the greasy ink on a printer's roller will stick to the greasy marks but will be repelled by the surrounding wet areas of the stone.[38]

This flat-surface medium with greasy inks gave artists far greater facility in manipulating their images, and the process of reproduction more closely aligned with methods for creating original paintings and drawings. Senefelder published the first color lithograph—known as a chromolithograph—in 1818. He printed 20 plates with multicolor initials imitating historic letters of the 1457 *Mainz Psalter*, the second book with color letters after the Gutenberg *Bible*. Senefelder used two lithographic stones, one for black ink and the other for red and blue inks, Gascoigne wrote.[39] Printers across Europe widely adopted the process, and "chromolithography came of age" in France when a patent for multicolor printing was awarded to Godefroi Engelmann in France.[40] Engelmann used four different stones, one each for black, blue, yellow, and red ink impressions. By the end of the nineteenth century, chromolithograph printing reproduced pictures in fine art books, literature, and art for framing. The reproductions were costly but

affordable, according to Gascoigne. For the price of about five shillings (about one dollar), the English printer Joseph Hullmandel, for example, printed chromolithographs of the landscape paintings of Thomas Shotter Boys, and "framed on the wall, these really do look to the eye like very accomplished watercolors," wrote Gascoigne.[41]

English printers employed the oldest form of pictorial printing in monotone—etching on wood blocks, which began in China in 868 A.D.[42]—and refined its use to bring color art into periodicals in the nineteenth century. Hamber's *Higher Branch of Art,*[43] Griffiths' *Prints and Printmaking,*[44] and Gascoigne's *How to Identify Prints*[45] recognize artist Thomas Bewick as the innovator who modernized wood engraving for periodicals:

> By restoring the relief block to a state of excellence, Bewick paved the way for the mid-nineteenth-century explosion of books and magazines with illustrations on the text pages. But the craftsmen churning out thousands of wood blocks to meet the deadlines on the presses were not themselves the originating artists, as Bewick had been.[46]

Bewick carved pictorial vignettes, some as small as an inch, to enliven literary materials with birds, landscapes, and animals. His wood carving processes blended speed, according to Hamber, with low-cost materials that made magazine and book illustrations affordable to the "middle markets." New processes in papermaking smoothed the printing surfaces and heightened the details in pictures for periodicals.[47] Woodcuts were not economical for multi-color uses until a method of electrotyping was created in the mid-nineteenth century, which enabled the carved wood blocks to be rapidly reproduced with chemical processes. With fine art available to the middle classes by lithography and

intaglio, British publishers of the penny presses aspired to bring color to their vast numbers of readers.

"Returning from Church," a Christmas picture depicting a family, published by the *London Illustrated News* on Dec. 22, 1855, became the first full-color illustration in the periodical literature.[48] Mason Jackson, a nineteenth-century journalism historian, wrote of publisher Herbert Ingram's desire to set his paper apart from the highly competitive London press by including a free festive gift with his weekly paper. Ingram used a hand-operated press to publish what Jackson described as an "ordinary" woodcut with tints.[49] The first color images in a newspaper were flawed, yet popular, and Ingram turned to a London art printer to improve the quality, Jackson wrote.

Ingram's subsequent Christmas issues ranked "among the best work of the kind" and were printed for the *Illustrated London News* by Leighton Brothers printing house, which had established a reputation for printing color art book illustrations.[50] The festive Christmas editions could not keep pace with consumer demand for Ingram's newspapers with color art. At a time when there were 80 London newspapers and 300 others in the rest of England, the publisher found a means to compete and thrive:[51]

> That of "Little Red Riding Hood," after J. Sant, R.A., published in 1863, was reprinted again and again, until the (wood) blocks were utterly worn out. They were then re-engraved, and again reprinted. The Christmas picture issued in 1882, "Cinderella," was specially painted by Mr. Millais, R.A., at the price of 3000 guineas. When it is noted that the large colored reproduction of this picture, together with seventeen highly finished full-page engravings by some of the best artists of the day, were sold for a shilling, it will be seen that the pictorial press is no unimportant factor in diffusing the purifying and softening influence of art.[52]

The genre of fantasy, and not the gritty realism of news, captured the focus of these illustrations that served to uplift and entertain readers, and carry their imaginations beyond everyday concerns. A fairy tale illustration of "Cinderella" maintained its printing viability, without cracking the wood blocks and necessitating re-carving, through 425,000 news copies of the 1882 Christmas edition.

Hamber's *A Higher Branch of Art* and Gascoigne's *Milestones in Colour Printing* attribute the first printing of "Returning From Church" to the Leighton Brothers, not the newspaper publisher's own print shop. All three historians concur on the achievement. "Returning From Church" was, most likely, first attempted on the in-house press and subsequently printed by Leighton Brothers (Figure 1). Hamber wrote:

> The tradition of cheap wood-engraved illustration was the hallmark of possibly the most influential illustrated periodical of the nineteenth century.[53]

The growing popularity of art reproductions in books and as individual framed pictures was a key incentive for Ingram to maintain high-quality printing, Hamber contended. Pictures in the *London Illustrated News* were also sold by Leighton Brothers as separate prints for framing. Hamber attributes great significance to *The London Illustrated News* and another weekly periodical, *The Penny Magazine,* by a different publisher, to increasing commentary and visual information on art:[54]

> *The Penny Magazine* and *The Illustrated London News* were ostensibly aimed at the level of the general reader and not at the "articulate" classes which included the establishment. Yet the more people read, the more articulate they were likely to become, and this, coupled with the increased

urbanism, the wealth brought about by the Industrial Revolution, and the growth in access to public collections of art, helped to create a market for the specialized art periodicals that began to appear in the 1840s.[55]

Ingram, a member of British Parliament, died not far from Chicago harbor, along with 330 others, one September night in 1860 on the schooner *Augusta*, when it struck a first-class steamer. The traditions of color printing continued at the paper after his death. The *Chicago Tribune* reported the loss to the publishing industry in a Sept. 11, 1860, news story on its front page:

> But sunk though he be, like Lycidas, to whom these words were first applied, his memory will long survive in the grateful hearts of his admiring countrymen, and perhaps more than one will live to own his sense of obligation to Mr. Ingram that the (wood) cuts of *The Illustrated London News* first awakened in his young heart a love and a devotion to the beautiful and the true.[56]

Figure 1. Created by G. Thomas and printed by George C. Leighton with tints on wood blocks, "Returning From Church on Christmas Morning" was published in *The Illustrated London News* on Dec. 22, 1855, and was the first color picture in a newspaper. News stories are printed on the back. (In the author's possession.)

Color printing advanced in American newspapers and evolved with photographic inventions that could be used to etch and engrave metal plates. None of the new photographic methods were able to unite pictures with words, unless the pictures were sent through one printing press and the texts through another, and the two were bound together on different pages, according to Beaumont Newhall.[57] The use of pictures with words—including color—emerged late in the nineteenth century.

The process known as "photoengraving" was invented by French lithographer Louis Nicephore Niepce in 1826. Niepce used chemicals to burn images into metal plates, instead of carving images with sharp engravers' tools.[58] Niepce's photoengraving process even preceded the 1835 invention of photography by his partner, Paris scenic designer Louis J. Daguerre.[59] Louis Flader and J.S. Mertle's *Modern Photoengraving,* Harry A. Groesbeck Jr.'s *The Process and Practice of Photo-Engraving,* and Beaumont Newhall's *The History of Photography* consider the transformative effects of chemical engraving and etching on picture-making.

The first photoengraving was a portrait of a candidate for pope, French Cardinal Georges d'Amboise, whose image was burned into a light-sensitized pewter plate. This pewter negative was made into a positive image with the aid of petroleum, acetic acids, and bitumen. A long series of inventors in Europe and America refined photographic imaging. Firmin Gillot of France in 1852 etched a portrait of Gutenberg onto a lithographic stone, transferred the image to a zinc plate, and etched it in relief with nitric acid. This process differed little from the

traditional ink lithography, but chemicals brought greater accuracy and ease to making negatives.

British scientist William Henry Fox Talbot discovered a process of engraving pictures with a system of dots, called "photogravure," which involved sensitizing steel plates to light with a solution of bichromated gelatin. This process was considered the first to create pictures by dividing a printing surface into dots that gave the illusion of continuous tone. In addition to steel, he used a fabric commonly worn by French ballerinas, tulle, to form a screen of holes.[60]

Color reproduction advanced when in 1859, James Clerk Maxwell of Britain discovered a process that used three-color negatives on wet glass plates immersed in colloidin, a highly flammable chemical found in alcohol and ether. And France's Louis du Hauron developed three-color prints for images with a process using carbon tissues sensitized to the primary colors in light.

Talbot's system of dots was refined for printing pictures etched in relief on metals and was developed into the "halftone" method by Max Levy, Frederick Ives, and Stephen Horgan in America, and George Meisenbach in Germany, according to Newhall.[61] William Kurtz of New York took a full-color picture of fruit that was printed in an 1893 issue of *Engraver and Printer*. His photo, reproduced with a three-color process using zinc plates, employed a method similar to Niepce's method of 67 years earlier. Kurtz, a German-born lithographer, succeeded in meeting the modern quest for color and introduced the international community to his realistic images at the 1893 World's Columbian Exposition in Chicago. Flader and Mertle wrote:

> It is not necessary to deal with the lengthy and involved history of the halftone process, especially when the invention of the process cannot be credited to any one individual—it is the result of a series of discoveries and inventions by many workers and students in different parts of the world.[62]

Incrementally, color printing moved forward, striving to recreate life with verity, ease, and precision.

Rationale

The rationale for discussing the science, theory, and application of color is to show how little was accomplished in the reproduction of pictures until the twentieth century. Theorists had great difficulty with the practical application of the basic science. The *Chicago Tribune's* accomplishments are all the more significant, not because the employees developed the basic science, but because they had the incentive to apply it, following centuries of dormant activity.

Additionally, the *Chicago Tribune's* motivation to invent methods for the reproduction of color pictures had greater affinity with ancient Greek philosophers, who believed the central role of education was to build better citizens. The *Chicago Tribune's* advocacy for communicating news through color pictures had far more in common with the philosophers of antiquities than with the era immediately preceding and coinciding with its own—yellow journalism.

Journalism Literature on Color Printing

Histories of American newspaper color have concentrated on the era of yellow journalism, which began in the 1890s with William Randolph Hearst's *New York Journal* and Joseph Pulitzer's *New York World.* The research conjoins color with sensationalism by using the metaphor of the Yellow Kid comics, created by

Richard Outcault in 1896. His cartoon about the urban antics of a boy from a New York tenement received its name from the yellow nightshirt he always wore. The comic was published first by Pulitzer as Hogan's Alley, until Hearst "lured" the cartoonist to bring the popular comic to his paper, according to *The Media in America*, edited by historian William David Sloan.[63]

Sloan provided no discussion of the press or the method for color, although linked by association, he cites Hoe and Co.'s 1883 web press for accelerating the speed of printing and folding.[64] *The Media in America* uses phrases such as "colorful style of news writing" and "picture-writing" to describe the 1920s' era of "jazz journalism" during prohibition, but makes no mention of color printing. *The New York Daily News*, an illustrated tabloid owned by the *Chicago Tribune,* was known for its "emotional mix of sex and crime news."

Similarly, *Centuries of American Media,* by journalism historian Lloyd Chiasson Jr., dwells on the sensational Yellow Kid comics in the 1890s and the "lurid" stories in *The New York Daily News*, and the management by Robert R. McCormick and his first cousin, Joseph Medill Patterson: "With an emphasis on crime and illicit sex, the *Daily News* soon became known, as historian Sidey Kobre described it, as the 'daily erotica for the masses.'" [65]

Media Now, written by Joseph Straubhaar and Robert LaRose,[66] and *Media Impact,* edited by Shirley Biagi, ascribe color to the Yellow Kid comics and to newspapers in the late twentieth century that attempted to resemble "television news more and more, emphasizing color photography."[67] Stanley J. Baran's *Introduction to Mass Communication* attributes color to contemporary

newspapers "softening" their literacy with photos that appeal to nonreaders and younger readers.[68]

Understanding Mass Communication, written by Melvin L. DeFleur and Everette E. Dennis, lends attention to the purposes of journalism. The book incorrectly credits *USA Today* for pioneering newspaper color in the late twentieth century as a result of market-based news.[69]

Historian Frank L. Mott's *American Journalism,* published in 1941, gives attention to a four-color press at Chicago's *Inter Ocean* newspaper in 1892, and a five-color press at the *New York World* in 1893, both of which were built by Walter Scott & Co., and a multicolor press for the *New York Recorder,* built by R. Hoe & Co. in 1893.[70] Mott identified specific publishers and printers in the early twentieth century:

> Press manufacturers all worked with the color problem through the thirties—R. Hoe & Company, Henry A. Wise-Wood, Scott, Goss, and Duplex. Publishers stimulated their advertising by use of run-of paper color, commonly using color attachments. Multicolor presses of eight or sixteen cylinders were installed by some papers. Color roto, begun as 'tintogravure' in the *New York Sunday World* in 1923, showed a considerable development in the late thirties.[71]

Mott cites an incorrect date for the first spot news color photo, which he believed to be June 7, 1939, when a *Chicago Tribune* photographed Franklin D. Roosevelt and King George VI with its "single-shot," color camera. The *Chicago Tribune* sent it by wire through the Associated Press the same day. However, the Chicago Tribune took the first spot news color photo nearly a month earlier of a grain-elevator fire in the Chicago, and published the color photo overnight for publication with its story the next day.[72]

Historian Alfred M. Lee's 1937 book, *The Daily Newspaper in America,* gives attention, without citing specific publications, to the use of four-color rotary newspaper presses in the 1890s, and the publication of color comics in response to the competition of radio.[73] American dailies printed advertising with color inks beginning in 1906, Lee wrote, although he did not specify the newspapers. By 1936, as many as 328 newspapers in 243 towns included some degree of color advertising on weekdays.[74]

The earlier historians, who examined phenomena closer in time to their lived experiences, documented some of the *Chicago Tribune's* accomplishments.

Chicago Tribune Historical Literature

Biographies and historical literature on the *Chicago Tribune* and publisher Robert R. McCormick have focused on politics, family, personality, and business. Lloyd Wendt in his book, *Chicago Tribune,* discusses color rotogravure and letterpress inventions by the newspaper's employees.[75] While Wendt's dates and details sometimes differ from those documented by primary sources (for example, he cites the *Chicago Tribune* for achieving the first half-tone engraving on a rotary press in 1898,[76] and the newsprint original confirms 1897[77]), he recognized the importance of visual journalism to the paper: "Color has remained an integral part of the *Tribune,* used widely by advertisers both on newsprint and roto presses."[78] Wendt acknowledged the *Chicago Tribune's* printers, John Yetter and Otto Wolf, for inventing the first color rotogravure in America, which made the newspaper competitive with national magazines.[79]

Jerome E. Edwards examined McCormick's isolationism in his book, *The Foreign Policy of Col. McCormick's Tribune 1929-1941*, and considers the publisher's business model of self-sufficiency as a response. Relative to the study of color, he noted the publisher's "pioneering use of color" and how it served as an advertising magnet.[80] He also gave some attention to foreign policy, as scrutinized through the lens of the editorial cartoons that were published in color.

Frank C. Waldrop's biography, *McCormick of Chicago,* does not discuss color, but he referred to the editorial cartoons for their scope of influence through syndication.[81]

McCormick's vertical integration, including making newsprint and realigning the printing presses for efficiency, are addressed by Richard Norton Smith in his biography, *The Colonel: The Life and Legend of Robert R. McCormick.*[82] He clearly establishes McCormick's tireless drive for innovations, but, color remained unexamined:

> Eager as always to beat the competition, McCormick authorized construction of an experimental four-color press in 1920.[83]

> Discarding the conventional grouping of five or six printers, each weighing thirty tons, interspersed for greater efficiency with half a dozen folding machines.[84]

The biographies address the era of "personal journalism," typified by McCormick's proclivity for slanting the news to serve his political views — conservative Republican and isolationist. He is uniformly derided for not only referring to the *Chicago Tribune* as the "world's greatest newspaper," but for printing it millions and millions of times over as the front-page slogan. The

climate of braggodoccia often colors the attitudes on color, as author John Tebbel conveys in his biography, *An American Dynasty*:

> Tribune enterprises, including charities, are overwhelmingly publicized as part of the Tribune's perennial campaign to glorify itself. Some Chicagoans assert facetiously that the paper has a bureau called the Glorifying-the-Tribune Department. Probably no other American newspaper has published more books, pamphlets and promotional material about itself. An example of routine clarification is the exhibit of *Tribune* color photos which opened early in 1945.[85]

The *Chicago Tribune's* and the McCormick Foundation's publications have illuminated some printing press technologies and basic institutional facts, and these have been significant as a point of reference to compare and contrast other literature. These books include: *The History of the Chicago Tribune 1847 to 1922,* published in 1922; *Pictured Encyclopedia of the World's Greatest Newspaper,* published in 1927; *War Cartoons Reproduced from the Chicago Tribune December 7, 1941-September 28*, 1942, published in 1942; and *Robert R. McCormick: A Celebration of His Life and Legacy*, published in 2005.

Summary

Beginning with the ancient Greeks, mankind has explored the scientific and subjective foundations of light and its properties of color. Timaeus in Plato's *Dialogues* and Aristotle in *Meteorology* introduced concepts of color mixing and separation. A distinguishing aspect of color, Aristotle argued, is its ability to engender an illusion of reality through art, and in doing so, carry the potential to impart empathy in the interests of the common good in a democracy. Sir Isaac Newton found all colors to be inherent in white light in 1666, and the discovery served as the basis for color printing experiments in the centuries that followed.

The *Oxford English Dictionary* lists 56 different uses for "color," and the definition shares a commonality with descriptions of music, resulting from its etymology in the Greek word "chromatic." Color refers to the infinite varieties of tones that change with the wavelengths of light in the electromagnetic spectrum. The term also refers to how people "shade" their language and interpret situations, events, and characterizations. Color can indicate virtue in character, as applied to the military and national loyalties, or deception.

American historians have brought attention to the negative qualities of newspapers during the era of yellow journalism in the 1890s and with market-based contemporary media. British historians of the art of the book have noted the significance of color by the penny press in popularizing the fine arts.

The introduction that follows will provide an overview of the *Chicago Tribune's* color printing achievements, and the influences of democracy and war in pursuing inventions to survive.

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CHAPTER III: HISTORICAL METHODOLOGY

Since the intention of this study is to understand the origins and development of the *Chicago Tribune's* pioneering role in pictorial color, this research seeks both qualitative and quantitative evidence. Three classic aspects of historiography for an academic paper or scholarly book are evidence, interpretation, and narrative. The first three research questions address evidence, and the fourth question seeks insights to interpret and convey the narrative.

A collection of full-color, nineteenth- and early twentieth-century newspapers was donated to Michigan State University in 2006, which enabled a rare opportunity to view historical materials normally seen only on black and white film. The gift by Illinois donor Janet Ginsburg offered evidence of the *Chicago Tribune's* full-color publishing.[1] The provenance of this historical *Chicago Tribune* collection identified that the largest portion of the artifacts was discarded from the publisher's archives in the 1980s.[2] These newsprints, numbering 5,506 pages[3] of illustrated originals, represent single pages, whole graphic sections, and some complete newspapers printed by rotogravure and letterpress. They present primary evidence of color inventions not described by scholarly literature.

Background on Newspaper Archival Reductions

Beginning in the 1950s, Eugene B. Power, president of University Microfilms in Ann Arbor, Michigan, encouraged libraries to microphotograph their periodical collections as a space-saving innovation. One hundred pages of

newsprint could be photographed with 35- and 16-millimeter films and stored on a plastic spool for as little as 90 cents.[4] Microfilm solved the difficult dilemmas librarians faced when choosing what to save and what to discard to make room for new books and periodicals. Through the use of microfilms and microfilm projectors, old newspapers could be photographed and viewed with magnifying projectors, saving institutions space for growth.[5]

The universal adoption by newspaper publishers and librarians of microphotography techniques by the 1980s led to most institutions discarding their periodical collections in favor of modern methods.[6] Consequently, little research has been possible on newspaper color, because periodicals—with rare exceptions—have been given broad access with black-and-white microphotography.

Chicago Tribune Newsprint Search

To ascertain the universe of historical *Chicago Tribune* newsprint originals for potential study, and make cross-comparisons to understand their cultural contexts, an exhaustive global search of libraries and museums was conducted to discern if there were duplicates, and also if there were illustrated color newspapers by other publishers.

This search relied on the two most comprehensive online databases for accessing information, Online Union Computer Library Catalogue (WorldCat) and the Online Computer Library Center (OCLC). Neither revealed any newsprint originals under the proper names "*Chicago Tribune*" and "*Chicago Daily Tribune.*" Recognizing that catalogues do not list entire holdings, the researcher contacted

libraries and museums by telephone to talk with directors and researchers in charge of holdings.

In Illinois, the Chicago Historical Society, responsible for the National Endowment for the Humanities' Newspaper Preservation Project, had no newsprint originals after 1871. The Chicago Public, University of Chicago and University of Illinois libraries had no *Chicago Tribune* holdings, and the Abraham Lincoln Presidential Library had three single black-and-white newspapers published in 1849, 1861, and 1863. Newberry Library had private papers, cartoon scrapbooks and original art of John T. McCutcheon, the chief editorial cartoonist at the *Chicago Tribune* in the early twentieth century, but no newsprint originals.

McCormick Research Center, the former home of the *Chicago Tribune's* publisher, Robert R. McCormick, in Wheaton, Illinois, had few newsprint originals, and held the *Chicago Tribune's* archives and publisher's papers. Lake Forest College held the archives for the *New York Daily News,* a Tribune Co. subsidiary, but had no *Chicago Tribune* newsprint originals.

Outside of Illinois, Syracuse University had original art boards by Carey C. Orr, the *Chicago Tribune's* chief editorial cartoonist in the mid-twentieth century, but it held no newsprint originals. The Ohio State University Cartoon Library held newsprint originals by McCutcheon and nineteenth-century color newsprint originals published by Hearst in the late 1890s. Purdue and Northwestern universities held original art boards and private papers but no newsprint originals. Duke University's American Newspaper Repository held a collection of Chicago Tribune comic sections.

The Library of Congress held a collection of William Randolph Hearst's full-color *American Humorist* magazine supplement from the *New York Journal and Advertiser* newspaper in the 1890s, and the *New York Tribune's* full-color gravure supplements in the early twentieth-century.

The search showed no redundancy and presented a critical necessity for research on primary sources, given the absence of previous research and the limited number of newsprint originals.

Research Questions

The *Chicago Tribune's* self-reports on inventions, combined with biographical data on the publisher's hyperbolic self-promotions, invite marked skepticism. A methodological issue has been how to study undocumented visual history with the validity necessary. Without previous *Chicago Tribune* studies on pictorial color, and little data cited in historical literature, the research methodology led to an inherent and extensive reliance on primary sources.

Secondary sources could augment the interpretive and narrative frames. The three elements of historical study—evidence, interpretation, and narrative, delineated by historians James D. Startt and William David Sloan—provided a classic framework for the research methods.[7] Consequently, the first research question sought objective evidence on the derivations of the color technologies:

> **Research Question #1:** Who participated in the invention of the color technologies at the *Chicago Tribunes* during the late nineteenth- and early twentieth-centuries?

Methodology: International and U.S. patent searches were conducted between 2006 and 2008, using multiple archives and databases.

The patent searches included: the online advanced search database of the European Patent Office;[8] the Annual Reports of the Commissioner of Patents of the United States;[9] the online advanced search database of the United States Patent and Trademark Office;[10] the Google Patent Search Beta database;[11] personnel files of the *Chicago Tribune* archives at The Robert R. McCormick Research Center, Wheaton, Illinois.

Patent numbers and inventors' names obtained in historical printing books and trade journals offered classification and cross-reference listings, and these included: Harry A. Groesbeck, Jr.'s book, *The Process & Practice of Photo-Engraving,*[12] in 1924; Louis Flader's and J.S. Mertle's book, *Modern Photoengraving,*[13] in 1948; Theodore Regensteiner's book, *My First Seventy-five Years,*[14] in 1943; H. M. Cartwright's and Robert MacKay's book, *Rotogravure,*[15] in 1956; *The Inland Printer*'s monthly journals from 1893 to 1930. Significant key word searches were conducted for potential inventors and applicants, using the terms "Tribune"; "Chicago Tribune"; "Chicago Daily Tribune"; "Tribune Publishing Co."; "Tribune Co."; names of its subsidiary companies (see Appendix B); and employee's names obtained from newspaper articles.

Visual Analysis

The second goal of the research is to describe the exemplars of color printing and conduct a visual analysis on primary sources. Consequently, the second research question focuses on the manifest content and qualities that

characterize the illustrations, which include the aesthetic composition, purposes, and mechanics:

Research Question #2: What *Chicago Tribune* color pictures exemplify characteristic qualities of its content and printing quality?

Methodology: A visual analysis of different genres will include 1) data on the creator, 2) mechanical process, 3) context, 4) how color is used, and 5) ideological and emotional import.

Research Question #3: What impact did the *Chicago Tribune's* printing have on the organization, news industry, and readership?

Methodology: A literature search will include industry trade literature, circulation data, and comparative research. In October 2007, on-site comparative descriptive research was conducted at the Serials and Periodicals Division of the Library of Congress on newsprint color originals published by the *New York Tribune* in 1919 and the *New York Journal* and *Advertiser's American Humorist* in June 1897.

Contextual Framing

To provide the cultural context for the *Chicago Tribune's* visual journalism, the research will draw on both primary and secondary sources of the period. The research seeks to explain how the *Chicago Tribune* engaged in color printing in the inter-war period. While significant sources involve significant analysis of the newsprint originals, other primary sources include

personal letters, business records, autobiographical data, patents records, and oral histories of artists and relatives related to the *Chicago Tribune's* employees.

Secondary sources, such as printers' and publishers' trade journals, and historical military, economic, social, and journalism literature provide cultural context.

Research Question #4: How did the innovations affect the culture? And how did culture affect the innovators?

Methodology: An interdisciplinary cultural approach will be applied to understand the governmental, economic, military, societal, artistic, and personal dynamics influencing the *Chicago Tribune's* development and use of color.

In-Depth Interviews

The oral history instrument and historical research consent form was designed to meet ethical criteria for the participation of human subjects. The ethical instrument adhered to "The Principles and Standards of the Oral History Association" for gathering and preserving lived events, as delineated by Donald A. Ritche in *Doing Oral History*.[16]

The relatives and associates of the *Chicago Tribune's* visual journalists and printers were sought based on genealogy searches. The printers' descendants with knowledge of their forbears could not be located. Five in-depth interviews were conducted with immediate family members of the *Chicago Tribune's* two chief editorial cartoonists, John T. McCutcheon Jr. and Carey C. Orr, both of whom won Pulitzer Prizes.

The instrument design involved semi-structured, in-depth interviews to obtain details, emotions, values, anecdotes, and unexpected data and encourage free associations during recollections. The interviews lasted approximately one hour, and short follow-up conversations and e-mail responses were initiated by the interviewees, as memories arose, and by the researcher to confirm details.[17]

Closed-ended and open-ended questions were used, generally with the former sequenced at the beginning or end, enabling uninterrupted, free-flowing conversations.[18]

Six relatives in four different U.S. cities participated in twelve in-depth interviews by telephone. Contact was made first by telephone calls, followed by letters of explanation about the research intent. The interviews were conducted one-on-one between the interviewer and interviewee; however, two interviews included an adult relative, who joined the discussion to assist the senior relative. The assistive relative was also a participant in the study.

With their written consents, participants' interviews were recorded and conversations were transcribed. Interviews were semi-structured to give participants a high degree of control to express themselves as they freely remembered events long past in their own time frame.[19] Questions evolved around themes: personal information, family relationships, work relationships, pictorial artwork, and developments with color.

Validity and Reliability

The validity of the in-depth interviews will be triangulated and systematically cross-compared among sources for the discovery of repetitious

themes and facts. Primary and secondary sources will include visual communication literature; histories of printing press technologies; biographies and autobiographies of *Chicago Tribune* employees; analysis of art; news editorials; news stories; U.S. and international historical literature and social science literature; artistic artifacts; and aesthetic literature.

The rationale for using multiple sources and multiple methods for evidence derives from Robert K. Yin's principles to maximize construct validity and reliability in case studies.[20] As a single-case study of the *Chicago Tribune's* pictorial color, the construct validity can be secured through multiple data sources. The primary and secondary data include government documents, personal letters, business records, oral histories, and newsprint originals in the special collections and general resources of: Michigan State University; The Library of Congress; Butler University, Special Collections and Rare Books, Gaar Williams-Kin Hubbard Collection; Historical Society of the Tonawandas; Indiana Historical Society, J. F. Mitchell Collection; Lake Forest College, Donnelley and Lee Library, Joseph M. Patterson Papers; McCormick Research Center, *Chicago Tribune* Archives; Smithsonian Archives of American Art, Alexander R. Katz Papers and Eleanor Jewett Papers; Smithsonian's National Museum of American History, Graphic Arts Collection.

The diversity of methods, archives, sources, and perspectives enabled the extensive triangulation of, in addition to the use of direct observation of, newsprint originals. The data were cross-referenced and checked for matching patterns to validate facts and characterizations.

Diverse perspectives were sought through consultations with experts, including at Michigan State University: Dr. Lucinda Davenport, professor and journalism historian; Dr. Howard Bossen, professor and visual journalism historian; Dr. Jeffrey Charnley, professor of American Studies and oral historian; and Panayis Lyras, professor of piano and Artist-in-Residence in Piano.

Experts outside of Michigan State University, included: Jeanne Drewes, chief, Binding and Collections Care, Library of Congress; Dr. Cathleen A. Baker, senior conservator, The University of Michigan, University Library; James E. Bredensteiner, printing expert, Bredensteiner Imaging & Associates; Helena E. Wright, graphic arts curator, National Museum of American History.

Results for patents were based on government-issued documents and cross-compared with *Chicago Tribune* archives, trade journals and printing, and news stories published in ProQuest Historical Newspapers, including *The New York Times, Chicago Tribune, Christian Science Monitor, Los Angeles Times, Washington Post,* and *APS Online periodical database.*

A convergence of evidence sought five of six classes of data to discover facts, per Yin's prerequisites of construct validity and reliability: 1) direct observation; 2) documents; 3) archival records; 4) open-ended interviews for insight; 5) focused interviews (with diverse experts). The sixth classification consisting of survey methods was inappropriate to this research.[21]

Primary and secondary sources will be evaluated, and oral histories will be conducted to broaden insights into the environment that led to widespread use of color by the *Chicago Tribune.*

Summary

The methodology for this historical research seeks to understand the *Chicago Tribune's* pioneering role in visual news color between the two world wars and seeks valid and reliable evidence based on primary sources. This study involves the three classic constructs of historiography: evidence, interpretation, and narration, and strongly relies on primary sources.

The research questions seek to identify the seminal figures in the development of color by the *Chicago Tribune*; to identify the characteristic values inherent to exemplary pictures; to understand the implications of the *Chicago Tribune's* pictorial color on its own organization and on society; to understand how culture and the social forces of the era affected the development of color by innovators.

Diverse methods and sources will be used to strengthen the reliability and validity of the results, with the intention of building a base of knowledge on pictorial color in the early twentieth century. Therefore, this study examines a seminal news leader in the development of color pictures.

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CHAPTER IV: EARLY INFLUENCES ON THE *CHICAGO TRIBUNE'S* LEADERSHIP IN MODERN COLOR

Influences of Joseph Medill on Printing

Printing and democracy evolved together in American history, and this chapter examines how innovation in pictorial color grew out of this tradition.

At dawn on June 10, 1897, the *Chicago Tribune's* newsboys hawked for a penny newspapers with color photographs. By ten o'clock in the morning, they hiked the price to a nickel, and next a dime, quarter, and by noon, they sold out except for a few held back to sell at even higher prices to collectors.[1]

"Luss-tree-ous Trib, only five cents," newsboys yelled, reported the *Chicago Tribune* in its coverage of the event. Hundreds of Chicagoans blocked downtown traffic as they stood at the publisher's headquarters and tried to buy a paper.[2] The United States was not at war. President William McKinley did not settle problems with Spain, only the "hope" of Cuba's independence from the European aggressor. The U.S. debt crisis was not resolved, but senators had proposed taxing chewing gum.[3]

The newsboys were the first to realize that color pictures sell newspapers. On the *Chicago Tribune's* golden anniversary, the penny paper made news. The *Tribune's* publisher, Joseph M. Medill, lived long enough to savor the success. A printer, lawyer, and former Chicago mayor, Medill lifted the morale of citizens after the great fire of 1871, and imparted a new vision. "Cheer up!" he wrote, despite the *Chicago Tribune* losing its own building in the flames. The ailing

publisher was in the last two years of his life, and the specialty printing event was managed by his son-in-law, Robert W. Patterson Jr.

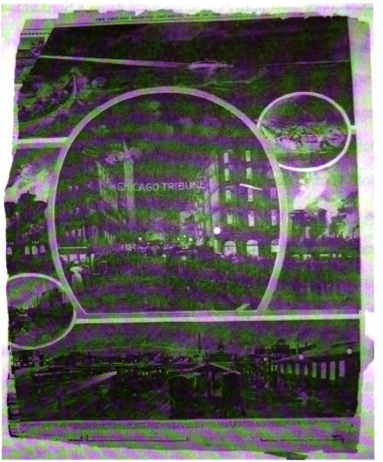

Figure 2. *Chicago Tribune*, June 10, 1897. This vignette, created for the newspaper's fiftieth anniversary in publishing, represents the earliest examples of color halftones printed in a newspaper with a Miehle Co. flatbed letterpress (Michigan State University; Reprinted with permission by *Chicago Tribune*).

Printers and democracy in America emerged from the same ideological landscape, impelled by the natural need for freedom. The printer-patriot Paul Revere published one of his engravings, the "Bloody Massacre," to incite colonists to rise in revolt against the British in 1770.[4] Printer Benjamin Franklin popularized the slogan "Join, or Die" in 1754, with the publication of a picture in

his *Pennsylvania Gazette,* which depicted a snake cut in eight pieces to signify Britain's destruction of America.[5]

Medill published a small newspaper in Coshcocton, Ohio, before gaining part interest in 1855 of a Chicago newspaper he made famous. By its fiftieth anniversary, the *Chicago Tribune* was the city's second largest paper with a circulation of approximately 110,000, and was rivaled by the *Chicago Daily News.*

With every piece of leaden type they gripped and set, American printers physically experienced the meaning of freedom of speech. Medill stood against slavery and helped engineer the successful Republican nomination and election of Abraham Lincoln in the 1860 campaign for U.S. President. Freedom of speech was not an abstract idea for patriot printers—rather, it was a profound right registered daily with ink, paper and mechanical presses.[6]

Almost a year to the day of the *Chicago Tribune's* fiftieth anniversary, Medill decided to honor the sacred trust that printers hold in democracy. He commissioned a bronze statue of Benjamin Franklin that towered 22 1/2 feet in height. The Franklin statue, dedicated in Chicago's Lincoln Park, was a gift to the Old-Time Printers' Association the first week of June in 1896.

The *Sunday Inter Ocean,* a competitive daily, lauded the event the following day and reported that the dedication drew thousands of people to the park. The guest of honor was a descendant of Franklin's:

> As Mr. Medill ceased speaking, he motioned to a young man in a white flannel suit to come to him, and then introduced him to the assemblage with the following: 'I have the honor of introducing Mr. Rene Bache of Philadelphia, the great-great-grandson of the immortal Dr. Benjamin Franklin, who is blood of his blood, and spirit of his spirit.'[7]

To Franklin's descendant went the honor of unveiling the statue hidden under an American flag. The "stars and stripes fell," revealing the tall bronzed figure of Franklin. The crowd's cheers nearly drowned out the military band's performance of the national anthem, *Sunday Inter Ocean* reported.

The fine art of American printing is historically linked to democracy in concept and practice. Dailies, although consumable items tossed out soon after they are read, introduce different concepts of democracy with the eclecticism of their news stories. The diversity conveys a picture of democracy for readers to define and redefine daily. Fine printing registers the value of freedom in the common language of a community's comings and goings and affairs of social governance. Poor construction of a newspaper suggests that the publisher's words and pictures carry no import, and the citizens are of no consequence in self-rule.

Adulation over the finely prepared anniversary edition resounded with superlatives by other publishers. The *Los Angeles Times* attributed the *Chicago Tribune's* success to the strength of Medill. Boards of directors and corporations cannot make a great newspaper, it reported:

> On June 10 that great newspaper, the *Chicago Tribune*—one of the greatest in the world—celebrated the fiftieth anniversary of its founding by issuing one of the most elaborate, beautiful and comprehensive numbers ever published by any journal in any land.[8]

A national trade paper, *The Journalist*, attributed the *Chicago Tribune's* success to Medill's integrity:

> The color and half-tone work is especially fine, and called forth most enthusiastic praise from newspapers all over the country. Letters of congratulation from friends, neighbors and readers poured in and

> evidenced the high esteem in which the *Tribune* is held. I am writing within bounds when I say that the *Tribune* is probably the most profitable piece of newspaper property in the United States, but it has done more than make money during its fifty years of existence; it has established a reputation for honesty and fair dealing, for enterprise and fearlessness....[9]

Despite the need to hire outside printers, the *Chicago Tribune's* decision was heralded. The paper contracted with printing experts in three commercial houses, with the color expertise managed by Theodore Regensteiner of Photo-Colortype Co.[10] He printed popular magazines that featured artistic color covers, such as *The Century* and *Collier's* in 1896 and 1897.

Regensteiner could apply color theories that inventors could not bring to full fruition for commercial application. His techniques were based on two inventors: Louis Ducos du Haron of France, who produced color prints by using a subtractive process that superimposed images on tricolor carbon tissues (three-color process) in 1869,[11] and William Kurtz of Philadelphia, who created halftone prints in color with zinc plates.

The Kurtz plates were sensitized with asphaltum, a naturally sticky mineral, His technique updated the black-and-white photoengraving invented by Joseph Niepce of France in the early 1800s. A Kurtz associate, color photographer Max Lau, joined Regensteiner's practice in 1894.[12] Eight years later, Kurtz and Regensteiner also opened a color printing business together, the American Colortype Company of New Jersey.[13]

The *Chicago Tribune's* color triumph drew impressive outside talents, who were ahead of printing trends because they invented them. In the twentieth

century, a new generation of publishing talents led by Medill's grandson, Robert Rutherford McCormick, collectively cultivated this formula at the *Chicago Tribune*.

On the *Chicago Tribune's* fiftieth anniversary, sixteen-year-old McCormick saw the first modern color pictures published in a newspaper:

1897 Golden Anniversary Issue

Four color paintings, cut into seven cameos, create a montage of Chicago night scenes in Part B. A rescue team rows through turbulent waters to a steamer in distress in Lake Michigan. The *Chicago Tribune's* headquarters sits across from a theater that well-dressed concert-goers leave after a performance. Orange flames of the pig-iron furnaces flank the headquarters and theater. A train terminal at Halsted Street reflects the electric lights on pools of rainwater and wet railroad ties. A fire at the back of the terminal spews red and ashen flames into the dark air. The *Chicago Tribune*'s placement in the picture centralizes its key position in city crises, cultural affairs, commercial life, and communications.[14]

The traditional method for creating color pictures in 1897 was for an artist to create line drawings with black ink. A craftsman would then cut colors from prefabricated transparent sheets (the Ben Day method) and artistically place them in the picture. The images were etched on thin copperplates. The Yellow Kid cartoon, published in the *New York Journal,* typifies this popular method (see Figure 4), which can create the appearance of a watercolor. The illustration technique lacks the nuanced colors reflected off objects, as naturally seen.

These transparent tints that were cut and pasted are flat monotones, however beautifully prepared.

This color section was part of the *Chicago Tribune's* forty-eight-page edition, separated in four sections. Six of the forty-eight were full-color pages. The first two sections contained the city and local news. Part One included both local and international news, display ads, and two pages of classifieds in its twelve-page section. Part Two, also twelve pages, was the editorial section with congratulatory letters from publishers, features, news, display ads, and a front-page reprint of the Oct. 11, 1871, *Chicago Tribune.* On that special day, the *Chicago Tribune* went to press two days after the Great Fire consumed its building, and Medill urged citizens to cheer up and rebuild.[15]

Part A contains the first anniversary section, consisting of eight pages with four pages in color. A color frontispiece depicts a drawing of Miss Chicago in a blue gown. Above her, spanning the horizontal width of the page, is a mural of miniature scenes of the 1893 World's Fair. An American eagle, American flag, and picture of the *Chicago Tribune's* headquarters are in the main portrait with Miss Chicago. James Whitcomb Riley, the popular American folk poet, added words of congratulations at the bottom of the painting. The inside pages contain historical articles on Illinois journalism, the formation of the Republican Party, and Lincoln's rise in government.

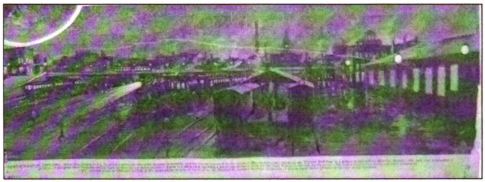

Figure 3. This halftone from the Figure 3 montage exemplifies the realistic nuances made possible by using color halftones—a photoengraving method used for the first time by the *Chicago Tribune*. Readers could see light reflected off rainwater at a Halstead Street railroad terminal at night (Michigan State University, Reprinted with permission of *Chicago Tribune*).

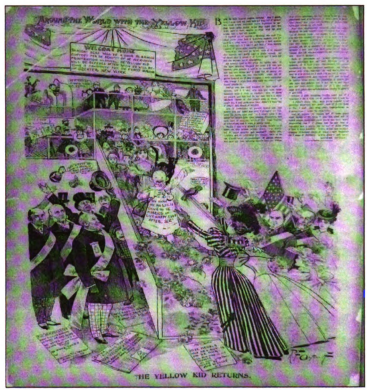

Figure 4. *American Humorist*, a Sunday supplement in the *New York Journal*, May 30, 1897. Richard Outcault created *The Yellow Kid*, a cartoon with stock tints cut and applied to a line drawing. The completed illustration was etched into a metal plate for printing on a Robert Hoe Co. letterpress (Library of Congress, Reprinted with permission).

These pictures and stories confirm to readers the importance of local American culture. When the *Chicago Tribune* believed it had achieved remarkable tone and details with black-and-white photographs, it printed a western landscape, Frederic Remington's *Her Calf*, on a half-page in 1897. But the publisher could not yet mass-produce realistic full color in-house.

A Southern publisher wrote a letter to the editor of *The Inland Printer*: "A few weeks ago I saw the Sunday *Tribune* of Chicago, and it contained a page of half-tones [sic] that looked fairly well for newspaper work. How is it done?"[16]

Scientific Advances in Photoengraving in the 1890s

An economic depression that swept the nation in the late 1890s left little nostalgia for rural life. The industrial greed that ruined farms and small towns remained unchecked until 1902, when President Theodore Roosevelt enacted anti-trust initiatives into law.[17] At the start of the twentieth century, half the nation's population moved to the cities,[18] and consumer demand for dailies rapidly expanded.

Scientific discoveries advanced through the widespread use of electric power. The refinement of photoengraving inventions by the 1890s spurred the growth of periodicals that could print photographs. The number of dailies in the United States steadily grew: In 1880, there were 410; in 1890 there were 1,500; in 1900, there were 2,000.[19] Increased demand offered only the positive side of the growth. In 1901, the *Chicago Tribune* faced ten other competitors.[20] Thirty-two Chicago dailies failed from the time the *Chicago Tribune* was founded in

1847 to 1901.[21] Before the turn of the century, Hearst's sensational war coverage and his popular Yellow Kid comics took the *New York Journal's* circulation to more than one million. *The New York Times'* circulation remained less than 100,000. The *Chicago Tribune's* circulation in 1897 was 111,000.

By 1895, American inventors had surpassed the rest of the world in the quantity of their inventions and accounted for more than half of all new patents. U.S. inventors filed 6,139 patents for printing and 1,545 for photography.[22] After New York and Philadelphia, Chicago filed the most patents. The 1893 World's Fair—the Columbian Exposition—brought attention to the modern marriage of science and art. Because of Kurtz's color halftone methods, fair-goers saw art reproduced at the heels of science.

McCormick and Medill

Robert McCormick was the descendant of two famous innovators—Medill, who built the *Chicago Tribune* in the nineteenth-century, and Cyrus McCormick, the inventor of the reaper in the 18th century. Medill and Robert McCormick drew close in the last three years of the publisher's life. "In my younger days, he didn't talk to me," McCormick said. Yet he and his older brother, Medill McCormick, lived with their parents in the publisher's mansion when they were not at boarding schools.[23] Their parents—Katherine, the daughter of Joseph Medill, and Robert S. McCormick, ambassador to Russia and France—had little interest in the newspaper business but savored the power it yielded:

> Toward the end of his life, my grandfather worried about the future of his daughters and grandchildren and contemplated selling the *Tribune.* I have forgotten to whom....In an article in the Review of Reviews of June 1895, Willis J. Abbott, an unreliable writer, stated that "Mr. Medill recently

> refused $4,000,000 for his paper." The price I heard mentioned was six million dollars. Mr. R.W. Patterson was very much opposed to the sale, which would deprive him of the editorship and my mother wanted to use the paper to obtain a diplomatic post in Europe, so they combined and persuaded him against the sale....Instead, his stock was left in trust with R.W. Patterson, my father R.S. McCormick, and William Beale, as trustees for his daughters and their heirs. The plan was carried out.[24]

McCormick's uncle, who was Patterson, brought each day's paper to the publisher's home. McCormick observed: "If the paper was over twelve pages daily, or sixty-four on Sunday, he had to explain why."[25] Eighteen-year-old McCormick was the only relative who remained at Medill's bedside in the final months of his life. In winter 1899, Medill traveled to San Antonio, Texas, to rejuvenate during winter in a hotel with his grandson. On March 16, Medill died there.

Later in his life, McCormick emulated Medill's passion for printing and the independent role newspapers have democracy. Like his grandfather, he became a lawyer, obtaining a degree from Northwestern University in the early 1900s, after graduating from Yale University.[26] A prodigious author of books, speeches, and pamphlets, McCormick dedicated his first book to his foremost pursuit, *What Is a Newspaper?,* which investigated the forces of good and evil in journalism, and the potential of dailies. Mankind's greatest discovery was the printing press, McCormick argued.[27] A journalist and a printing press were like a railroad and its passenger. "It is his machine and not the man that makes the speed," he wrote. His perspective placed the reader in a passive role, while the publisher dominates control of the machine:

> I have asked a few friends to answer instantly the question—which is the greatest of all inventions and discoveries? The majority have said the

> steam engine or two of its manifestations—the steamboat and the steam locomotive....But, gentlemen, greater than any of these, far more powerful than steam, more explosive than gunpowder, more world-encircling than steam or sailboat, was the epoch-making invention of the printing press.[28]

The press can foment revolt and spread contempt among people. Without the press, the Reformation, Napoleonic wars, American Revolution and World War I could not have occurred. "The discontent of the subject peoples of Europe could not have been fanned into flame without this machinery," McCormick maintained. Yet with all its destructive abilities, McCormick defined a modern newspaper based on its virtues for spurring commerce, modernizing civilization, and asserting a check on government.[29]

His questions about the function of newspapers were not proposed as theoretical considerations, but for the materialization of those values. He cited the *Chicago Tribune's* 7 million letters of type cast each week to print the words in the Sunday paper, the 393 domestic news reporters, and 29 foreign correspondents, the distribution system for 1 million people, and the 200 miles of forests used to make paper. McCormick's vision of the newspaper was informed by Medill's practices.

In 1869, when country publishers in Indiana invited Medill to one of their meetings, he instructed them on how to print an attractive newspaper. Invest in high quality ink and paper, he advised:

> The nearer pure white the paper is the better. Next, get good black ink; for every cent you save by purchasing inferior ink you will lose ten. Buy the best no matter about the cost, for your ink bill is a small item by comparison with other expenses. The next thing is good press-work, and this is a thing too much neglected by most publishers. The press-work of a majority of country newspapers is perfectly disgraceful to the noble art of printing.[30]

More than sixty years later, McCormick similarly addressed the American Society of Newspaper Editors about the need to improve newsprint quality. He advocated against tariffs on better grades of paper:

> The paper we use is wretched. It is out of date. It is inferior to the paper used by the inferior newspapers of Europe....We have a poor sheet of newspaper partly because we have been indifferent, partly because we have been parsimonious and have dwelt on price rather than quality, and partly because our paternal government, in its endless interference with business, forbids the importation of a better sheet without paying a prohibitive tariff.[31]

In another book written by McCormick, *The Founding Fathers,* he ranked Benjamin Franklin above all other American patriots in significance to the nation. "He began life as a printer, and long before the other revolutionists, had felt the lash of oppression," McCormick wrote.[32] It was Franklin's versatility that found favor with McCormick. The statesman-patriot discovered electricity, created system for navigation at sea, invented bifocal eyeglasses, published and wrote popular literature, and was a contributing author of the U.S. Constitution.

Medill represented one significant maternal influence on McCormick, and his paternal legacy, another. The American system of manufacturing took root in the genius of McCormick's forebears. Historians attribute the 1831 invention of the Virginia Reaper to McCormick's great uncle, Cyrus Hall McCormick. The reaper machine was showcased at the forefront of the Crystal Palace Exhibition of the Industries of All Nations in London in 1851, and won the fair's first prize. The European press sneered at the agricultural invention, wrote Cyrus McCormick's grandson with the same name as the inventor: "The young United States had developed little art of its own, so it could show nothing except those

useful products it had provided to make its own daily life more tolerable," the third generation Cyrus Hall McCormick wrote. He was Robert R. McCormick's neighbor.[33]

Three central elements of the reaper relate to inventions at the *Chicago Tribune.* First, the reaper exemplified the early characteristics unique to American mass production—namely, the interchangeability of parts and the specialization of parts. A part could be removed if broken or improved if modifications were found.[34]

Second, the marketing and not the monetary gain from patents built the reaper's success, Cyrus H. McCormick, the grandson, explained. The inventor was at the point of losing an extension on his patent and "resented the fact that an unkind government had denied him further protection just when his patent rights were beginning to be valuable." In 1859, when he lost his patent rights, William McCormick wrote his brother, Cyrus, a letter to appeal to salient function of the reaper: "Your money has been made not out of your patents but by making and selling machines."[35] The McCormick Harvesting Machine Co. made extensive use of fine color lithographs to publicize the reaper to farmers through posters, catalogues, and display art in the nineteenth century.[36]

The bickering over patent rights was contentious not only among the other reaper inventors, the McCormick descendents squabbled about it, too. An angry Katherine McCormick wrote a letter to the editor of the *Chicago Tribune* on the occasion of a tribute to great Americans being celebrated in Urbana, Illinois. The tribute was to include Cyrus H. McCormick. She wrote that he deserved credit for

the reaper's financial success, "but any overzealous laudatory who puts forth the claim that C.H. McCormick invented the reaper would be guilty of a preposterous error":[37]

> The reaper was invented by Robert McCormick of Rockbridge County Virginia, in the early '30s and he manufactured with the help of this third son, Leander J. McCormick, fine working, serviceable machines, which he sold to the farmers of Rockbridge county and neighboring counties in goodly numbers until he died in 1845. His machine was never patented. After his father's death Mrs. Cyrus H. McCormick, following some serious business vicissitudes in various localities, came to Chicago and with his brothers, William B. and Leader J. McCormick, established the Chicago Manufactory of the reapers invented by their father, which enterprise brought success and fortune to all three of them.[38]

Katherine named her son after his great-great grandfather—Robert Sanderson McCormick. Later, she changed "Sanderson" to "Rutherford." Two McCormick relatives, Robert Hall McCormick III and Elizabeth Day McCormick commissioned a new family history in order to attribute the reaper to Robert, and not Cyrus. They published the book themselves in 1957—the *McCormick-Hamilton Lord-Day Ancestral Lines*.[39]

The dissension over patent rights and the claim of creative genius evoked an unpredictable response later in life by McCormick, when named president of the *Chicago Tribune* in 1911. Thereafter, for four decades, he championed, cheered, bragged, wrote about, and paid high percentages of profits to the *Chicago Tribune's* employee-inventors. He said little about his own ten patents that made the employee's subsequent inventions practical to use for publishing a daily. The employee's received from twenty-five percent to fifty percent of the profits or savings, whichever was greater.[40]

They were extended family. Among them were John C. Yetter, inventor of the color rotogravure press; Otto R. Wolf, inventor of a color letterpress to run paper editorial cartoons and advertising; William H. Wisner, inventor of a means for transmitting pictures by telegraph wire; Godfrey Lundberg, inventor of color camera advancements; and Theodore Schultz, inventor of color rotogravure registration parts and other specialty press mechanisms (see Appendix A).

World War I

In 1910, the greatest problems facing the *Chicago Tribune* were its potential sale and the newspaper circulation wars. When Patterson died in 1910, the stockholders considered selling the *Chicago Tribune* to the *Chicago Daily News.*[41] McCormick, a conservative Republican, and his first cousin, Joseph Patterson, a socialist, persuaded the board to let them co-manage the newspaper. Each month they exchanged responsibilities for overseeing the editorial board meetings until 1919, when McCormick took full charge of the *Chicago Tribune* and Patterson, full charge of the Tribune Co.'s newly pictorial tabloid, the *New York Daily News.*

In 1910, William Randolph Hearst positioned his paper, the *Chicago Examiner,* to take the lead in the circulation wars. He slashed the price in half, down to a penny, to undercut the *Chicago Tribune's* two-cent paper.[42] McCormick felt the only way the *Chicago Tribune* could survive would be to have a dependable supply of inexpensive newsprint and not make the cost dependent on fluctuations in the paper markets. The *Chicago Tribune* became the first publisher to own its own paper mill, the Ontario Paper Co. in Thorold, Canada,

and began manufacturing by 1913. McCormick spent a large amount of his time for two years in Canada with a leading paper mill designer and engineer, Warren Curtis Jr. The mill's hydroelectric power initiated a new level of mass production in paper making and prepared the *Chicago Tribune* to battle competitors.

World War I was underway in Europe for three years before the United States committed its troops to the battlefront to aid its losing Allies—the British Empire, France, Russia, and Belgium. The Russians were engaged in overthrowing the czar, and the British and French forces were failing.

The poorly funded American Expeditionary Force, ill-suited for modern warfare, was sent abroad in 1917 under the command of General John J. Pershing.[43] On July 9, 1917, Pershing noted in his diary:

> Had conference on Thursday with Colonel Thornton, British Army, regarding transportation problems. Cabled Washington Friday asking for 1,000,000 men by May. Wrote Secretary of War today giving resume of situation.[44]

The Allies estimated 500,000 soldiers would be needed, but at the battlefront, Pershing determined otherwise. He received promises from France for the U.S. Calvary's 100,000 horses, but ranchers refused to sell their animals in anticipation of a postwar market glut. The American infantrymen were suffering from trenchfoot, respiratory diseases, exhaustion, and atrocities from chemical warfare:

> The low state of Allied morale was already well-understood. While the full extent of defection in the Russian armies was not realized at this time, enough was known to lead to the conclusion that they could not be counted on to give much further assistance to the Allies.[45]

America entered the war with only 285,000 rifles, 400 light field guns and 150 heavy field guns.[46] The U.S. soldiers lacked warm clothes, helmets, horses, automatic rifles, and training, and France, which needed to arm her own military, was not prepared to offer supplies.[47] "Thus the deeper we went into the situation, the more overwhelming the work ahead of us seemed to be," Pershing wrote.[48] The United States did not begin tests to manufacture machine guns until after the war began and still needed to manufacture 2million rifles.

Germany initiated chemical warfare in World War I at Ypres, France, in 1915. Taking advantage of an early evening breeze in April, they unleashed deadly clouds of gas pumped from pipes placed near the French and English trenches.[49] Thereafter, the British trained 6,000 soldiers and the Americans 3,400 in chemical warfare. The open trenches offered little protection.[50] Americans struggled to use French and English gas masks, which frequently failed.[51]

McCormick, who was pro-war before his military service and an extreme isolationist afterward, offered to help advance the nation's cause in a private meeting with Franklin D. Roosevelt in February 1917, after Germany launched submarine attacks. Roosevelt, a former classmate at the Groton prep school, was then the U.S. undersecretary of Navy.[52] Based on a discussion of war needs over lunch, McCormick followed up by placing a one-page advertisement in the *Chicago Tribune* that called for men to enlist in the Illinois Calvary, where he held the rank of major. For men who worked at the *Chicago Tribune,* McCormick promised to hold their jobs for their return.

In a letter to Pershing, McCormick offered his fluency in French, honed during his father's ambassadorship. His older brother, then-U.S. Senator Medill McCormick, solidified a plumb position for him as an intelligence liaison officer to Pershing.[53] After a few months of intelligence assignments, McCormick, 37, asked to be reassigned to the front lines in the first brutal battle of World War I to liberate France. As major, he set off to lead a battalion of 800 men in combat.[54] His commanding officer, General Charles P. Summerall, wrote that in April 1918, McCormick "marched his battalion with the First Division to the Cantigny Sector, where he occupied one of the most exposed positions. He participated in the assault and capture of Cantigny on May 28."[55]

The peril to American soldiers struck deeply at McCormick's being. The man accustomed to privilege discovered no amount of money could achieve safety on the lethal road to Cantigny in the first series of battles that turned around the war.

McCormick commanded a battalion of 800 men in the American Expeditionary Force's 1st Division. In his army diary, McCormick described one assault on February 9, 1918:

> Clear Like early fall. Shells began to fall near command post at lunch. Engineer officer from Gen. staff said, "Quite an experience for a staff officer." I replied, "Yes, now the staff can put a star in its service flag." Shells began to center of 158. I started out there. Capt. Ruberg said impossible. We watched firing which set powder magazine on fire. We reported what we took to be the gas shells. After firing went to battery. I was first in it. Could not use gas mask because too dark.[56]

Because of the lack of weaponry, McCormick as a commander exploited the use of deception as a fighting tool and made up for what the Americans did

not have. Where he positioned the weaponry and when the soldiers fired were used to deflect the challenge. In mid-May 1918, the Germans held higher ground at Cantigny. Pershing decided the 1st Division should improve its position.[57] The artillery fire was heavy in the Cantigny area, and the casualties heavy on the front lines as men advanced and constructed trenches, Pershing wrote.[58]

The 1st Division prepared for attack under "great difficulty." McCormick's battalion began firing on May 28 at 4:45 a.m. Two hours later Cantigny was "one mass of smoke," his adjutant officer wrote. They advanced over a hill and dug themselves in "against steady German fire at twenty-second intervals." Pershing sent French General De Chambrun to meet with McCormick in preparation for the attack that day. The German offensive was tremendous, he said. McCormick's quick actions saved troops at a critical juncture.[59]

> Howitzers were necessary to lob shells into the German trenches and break up their resistance. The infantry was not used to working with these guns which splashed up a huge amount of debris, and we received word that the shells were falling short. The moment that report reached McCormick's dugout he grabbed a portable telephone and ordered the bombardment shifted 150 yards to the right and 150 yards increased range. As it developed, none of our shells fell on American infantry. The fire of his batteries was so precise that the doughboys then marched forward, cleaned out the German trench system....[60]

The Germans bombarded the front lines. McCormick was sent to a hospital by noon. At the battlefield, *Chicago Tribune* correspondent Floyd Gibbons described the enemy's relentless pounding with gas shells loaded into eight-inch projectiles. "In his choice of ammunition he [the Germans] manifested a preference for gas, delivering apparently a half and half mixture of his two

favorites—yperite mustard and phosgene," Gibbons wrote. He saw ambulances carrying Americans to hospitals that had treatments for toxic chemicals.[61]

"I spent hours in gas in World War I without permanent effect. No gas can be as bad as the large fragments of explosive shells," McCormick said, describing the battle thirty years later.

The 1st Division successfully took Cantigny and 240 prisoners in the first major action that changed the direction of the war.[62]

Biographers have questioned McCormick's May 28 activities. The surviving military records are scant. Biographer Frank Waldrop maintained that McCormick never fought on May 28. The adjutant officer, Arthur Schmon, filed the official battle report for McCormick, his commanding officer. Schmon was never able to recall additional facts other than those he officially reported. The most detailed historian of McCormick's life, Richard Norton Smith, argued that enough documentation established the publisher's courage.[63]

After the war, McCormick placed Schmon in charge of the Ontario Paper Co. Schmon managed two paper mills and 4,800 employees and produced 400,000 tons of newsprint annually. Yet, he could not fully recall the activities of his commanding officer on May 28—an historic day of violence.[64]

Three months after the battle, a *Chicago Tribune* editorial reported that McCormick stayed with his battalion at Cantigny until he was "sent to the hospital with trench fever and shell shock."[65] Whatever happened, McCormick returned home a colonel, honored with a distinguished service medal.[66] He also returned

home disillusioned by Europe's weaknesses and America's inadequate preparations for war.

McCormick stood six-feet-four-inches tall, and in 1915, he weighed 219 pounds. His imposing stature dominated a room, and his vulnerabilities, he hid. In an era without antibiotics, McCormick experienced repeated bouts with life-threatening diseases: scarlet fever and bronchial pneumonia in his teen years, and brutal battle diseases as an adult.[67]

He continued to fight the war the rest of his life and positioned the *Chicago Tribune* as his cause worth fighting for. The efficacious trenches he dug for the *Chicago Tribune's* survival were the adrenaline of high morale and the speed of modern technology. The lessons of Cantigny aided his fight through two postwar economic depressions.

He introduced the slogan "1921 Will Reward Fighters" to bolster the spirits of the *Chicago Tribune's* advertising salesmen in the depression of 1920 and 1921. The sentiment motivated people in varied occupations.

> We live on a large farm and have always depended on our hogs and to a large extent, besides the corn and seed, of course. This year the drop in all these and no sale for wool at all has almost put us out of commission....I cut out the slogan, hung it in my kitchen, and several times a day I glance at it and say to myself: Keep fighting and saving and working, and perhaps there'll be a reward some day.[68]

> Several thousand tenants are expected to go to Springfield on March 16 with a petition of more than 100,000 names asking the passage of the bill....A.E. Jessurun, secretary of the league [Chicago Tenants' Protective League] has adopted for that organization the slogan "1921 Will Reward Fighters."[69]

> Banks everywhere realizing that the days when they could wait for business to come in have passed—that business will only come to those

who go and get it—well selected is the *Chicago Tribune's* slogan 1921 will reward fighters.[70]

The fighting spirit resulted in *Chicago Tribune* salesman Walter J. Merrill selling a one-year advertising contract in 1920 for 104 pages of color, totaling $122,000.[71]

The science and art of color mass production signified modernity in the 1920s. On leave from the battle's front lines, McCormick traveled to the city once known for its gaiety and fashion. He recalled the shrouds of destruction in his memoir:

> During the war everyone in Paris wore black, even the cocottes [sic: coquettes]. I remember, as a guileless youth, pitying the women in Ciro's restaurant as young war widows. With the end of the war, riotous colors came in light signs, the Eiffel Tower, women's clothes, men's neckties.[72]

He returned home poignantly aware of the gravity of war, but he looked inward at his strengths and began re-invigorating the *Chicago Tribune* through the democracy of color.

NOTES

1. Theodore Regensteiner, *My First Seventy-Five Years* (Chicago: Regensteiner Corporation, 1943), 233.

2. *Chicago Tribune*, "Join in the Jubilee," June 11, 1897, 1.

3. *Chicago Tribune*, "In Arms at a Gum Tax," June 10, 1897, 23.

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6. Philip Kinsley, *The Chicago Tribune, Its First Hundred Years Vol. I* (New York: Alfred A. Knopf, 1943) 71-110.

7. *The Sunday Inter Ocean*, "New Statue in Place," June 7, 1896, 1.

8. *Los Angeles Times*, "The Chicago Tribune's Golden Jubilee," 1897, 6.

9. Allan Forman, "The Chicago Tribune's Golden Jubilee," *The Journalist,* 1897, 71.

10. *Chicago Daily Tribune,* "Golden Jubilee Edition. The Chicago Tribune Is 50 Years Old Today," June 10, 1897, 228-238.

11. Louis Flader and J.S. Mertle, *Modern Photoengraving* (Chicago: Modern Photoengraving Publishers, 1948), xxxix.

12. Theodore Regensteiner, *My First Seventy-Five Years* (Chicago: Regensteiner Corporation, 1943), 98.

13. Ibid., 218.

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CHAPTER V: THE *CHICAGO TRIBUNE'S* INVENTION OF THE COLOR ROTOGRAVURE PRINTING PRESS

> *After the war the world flamed into color, not only neckties and shirts and other articles of apparel, masculine and feminine, but table linen, tableware—everything turned toward color excepting the backward newspapers.* —Robert R. McCormick[1]

In the wake of human suffering and loss following World War I, pictorial color in newspapers signaled the revitalization of American daily life, and the restoration of normalcy. World War I cast a long shadow that visually subdued color on the home front, out of respect for the fallen and for practical reasons. By the war's end, Americans hungered for color.

A German embargo on dyestuffs, which began in 1914, intensified the psychological urgency for color. The German manufacturing companies had already perfected the dye-making machines for inks that maintained their historic leadership in printing. With a global monopoly on the dye-making industry, Germany revealed an international dependence on color that affected the fashions, carpeting, wallpaper, home and manufacturing paints, and beauty products. Critically important were the U.S. Bureau of Engraving's needs, for it wholly depended on German inks in order to print national securities and postage stamps.[2]

The Bureau's monthly purchases totaled 40,000 pounds of yellow, 8,000 pounds of red, and 10,000 pounds of blue inks—the critical primaries required for mixing all other colors. Vegetable extracts have long been a temporary source for dyes, but their colors did not last. The inclusion of various intermediary chemicals with dyes was found to create permanence and unmatched color brilliance.[3]

Germany's chemical industries added aniline distilled from tar to mix red; potash to mix blue; chromate and lead sulphate to mix yellow; and charred refuse from its vineyards to mix black.[4]

Ink prices soared from 300 percent to 3,000 percent, depending on the color. Yellow, with a lead base needed for munitions, cost the most and blue the least.[5] Metals for etching pictures in newspaper art departments were redirected to the military, raising the price for the limited supply from four dollars a pound to fifty dollars. Before the United States entered the war in 1917, the State Department and president were pressured to negotiate with the enemy to help U.S. industries.

Over British protest, the United States negotiated with Germany and Austria for dyestuffs and chemicals in exchange for cotton.[6] Americans' persistent pressure on President Wilson reached an international fever pitch until Britain erupted in anger. The royal navy set up blockades to prevent any trade with the enemy—cotton or contraband, it did not matter. England's newspaper publishers defended their citizens and pummeled selfish Americans in editorials:

> The British empire, which is shedding blood and not ink for vindication of "neutral rights," has reached a stage in the conflict where technicalities will not be allowed to restrain the legitimate use of all its weapons of warfare. Our right to prevent supplies form reaching the enemy is absolute....[7]

President Wilson took full control of the nation's railroads in 1917. As a result, goods transported for military need were given priority over other shipments. Saving fuel for battle was another goal. Federal officials indirectly deterred the growth of domestic ink companies by deterring the shipping of raw materials from the fields to factories.[8] Inks for publishers did not rise to the critical

mass. Home-made ink recipes made news. The *Indiana Farmer's Guide* reported growers in war-ravaged France made ink from mushrooms. They bottled the fungus they called the "ink stand," and it decayed in a few days into black pulp.[9]

The *Chicago Tribune's* invention of the color rotogravure press in 1919 was all the more remarkable, considering the short supply of ink products.[10] The need for self-sufficiency resulted in the *Chicago Tribune* manufacturing its own ink by war's end. The pre-eminent method of high-speed color engraving manifested the values of patriotism and pride in national culture by its sheer inventiveness. And, the energy that forged the machinery for color fomented creative living through the images of America it printed.

On the brink of World War I, *The New York Times* successfully received a new German rotogravure press and was the first newspaper in America to publish rotogravure in single tones. The *Philadelphia Public Ledger*, *The Boston Sunday Herald*, and the *Chicago Tribune* all ordered German rotogravure presses before the embargo.[11] The *Chicago Tribune's* presses arrived dismantled and parts were missing. With no chance of obtaining parts, the newspaper's printing foreman, John C. Yetter, studied the German machine with the hope of rebuilding it and making it work. Instead, he built a new machine to mass-produce color in newspapers by engraving.

Yetter eliminated a problem that had hindered color reproduction for decades—how to print at high speeds and stop wet inks from blurring and streaking across paper. His tight control over ink registration resulted in visibly flawless reproductions. The yellow, red, and blue printing plates aligned their

colors and prevented defective images. The primaries imprinted color images with precision.

The *Chicago Tribune* saved its black ink for news stories and turned to real sepia, a rich brown fluid contained in cuttlefish, for color rotogravure art.[12] The fish's natural fluid rendered soft flesh tones and a verity to light in the portraits and paintings the *Chicago Tribune* reproduced. Yetter's one multicolor press could print more pictures faster, easier, and better than four single presses, and wrote:

> In intaglio [engraving] in which say, three colors were employed, it was customary to use one press and to print but one color at a time in said press. Cut sheets of paper were run through this press that had but one impression and one etched cylinder, and these sheets, after they had dried were then run through the impression and etched cylinder of a second press, or the same press in which a new etched cylinder had been introduced then, after being dried a second time were run through cylinders of a third press, or through the same press in which another etched cylinder had been inserted....If the same press was used...this required very careful adjustment and expert manipulation and it was seldom possible to print more than 1200 color pictures an hour by the intaglio process.[13]

Color rotogravure densely covers news pages with inks that suggest the image has continuous tones, instead of visible dots, broken lines, and white spaces that appear artificial to viewers. The high saturation of color inks on the news page reflects more light. Color is light, and light is energy that enlivens an experience as it travels along the electromagnetic spectrum. Energy, magnetism, and renewal—all are dimensions of color. As light bounces from an image, the sensitive nerve cells of human retinas respond and interpret, and the personal ownership of color transpires. Color absorption is sensually effective, even in experiencing tragic images. This sensory dialogue of receiving and interpreting

light is an expression of freedom similar to free speech. The visual freedom of democracy gathers energy in the constituents of light (See Figure 5).

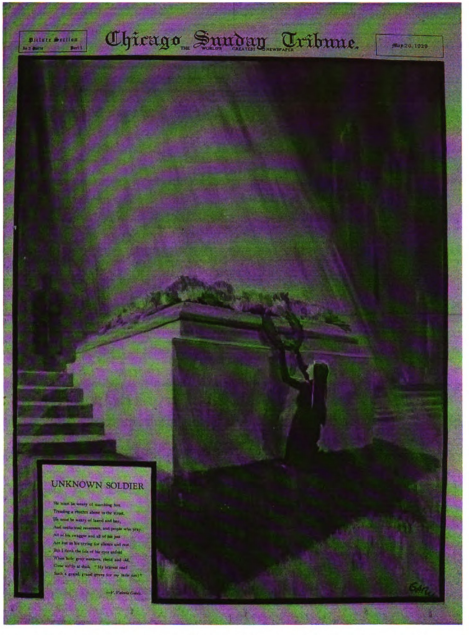

Figure 5. "Unknown Soldier," *Chicago Tribune*, May 26, 1929, a Picture Section cover. This painting by *Chicago Tribune* editorial cartoonist Gaar Williams was mass-produced on a color rotogravure press invented by John C. Yetter of the *Chicago Tribune*, who also made the inks (Michigan State University Collection, Reprinted with permission, *Chicago Tribune*).

The process of printing a color rotogravure picture involves carving an image beneath the surface of a thin metal plate. The images are not formed by metal tools—instead, indentations are made by photo-chemical burning. Thousands of microscopic indentations that look like cups or cells hold the inks. Four copper plates with the same image are made for the yellow, blue, and red inks, and for sepia. The plates are then wrapped around spinning cylinders.

The inks in the sub-surfaces of the copper plates are poured into 20,000 microscopic cups per square inch of the rotogravure, which is the size of the news page. The cups have three different depths to impart gradations of light—highlights, middle tones and contrasts—instead of two-dimensional effects typical of letterpress.

These complex plates roll their images directly across each news page at a speed of 928 completed twelve-page sections per minute with a registration of 1/1000th of an inch. Yetter's first machine measured two feet wide and ten or twelve feet long, and printed 200 completed eight-page sections per minute.[14]

Letterpress is an etching method with images in relief that can carry light amounts of ink. A rubber stamp uses the etching method. Only a light amount of ink can be carried on the surface of its raised letters after it is pressed on a pad, and it stamps only a light amount of ink onto paper. The etching process of letterpress is the oldest method in news printing, and the minimal ink used typically speeds the drying process (Figures 6-7).[15]

The key advantages of color rotogravure stem from its ability to reproduce images with realistic subtlety, achieve cost efficiencies for long press runs, and

print well on cheap paper—newsprint.[16] More uniquely, it imparts the quality of an original drawing, even though mass-produced. The dense application of ink creates a sensory experience that is not equal to seeing an original painting or object, but one that, nevertheless, is satisfying.

The special press required fast-drying inks to prevent smearing, and Yetter designed and mixed the brilliant inks used for color rotogravure (See Figure 5). One year after the machine was invented, the *Chicago Tribune* built an ink plant for Yetter's manufacturing process and a paper mill for the color rotogravure newsprint at North Tonawanda, New York.[17] Creative ideas for new and better methods were drawn from foreign correspondents throughout the world.

Sigrid Schultz, the Berlin correspondent, passed on ideas for de-inking and reusing newsprint to the *Chicago Tribune* management. In 1930, she met German inventor Hans Scheele, who patented a method for taking inks of any color off the surface of newspapers. In one of many letters to McCormick and other managers, she wrote:

> The pulp and colloidal solution are churned for an hour or two after which the old newspaper can be found in the churning vats in three layers. At the bottom Scheele says he finds the black of the ink or other color pigments—they can be used again—on top of this a whitish mass—paper pulp ready for use—and way on top oil, or whatever greasy stuff has been used to bind the black color elements.[18]

McCormick traveled the world himself to determine if any other newspaper was more innovative. On a trip to Paris and Berlin in 1923, McCormick awakened to the idea that the entire *Chicago Tribune* organization needed to be reshaped to successfully achieve a culture of color in news. The *Chicago Tribune* needed

artists, he said, who were versed in color illustration and photographers versed in color techniques. Before leaving Paris to study the newest color cameras in Berlin, McCormick wrote a letter to his cousin, Joseph Medill Patterson, co-publisher, about the systemic changes needed at the newspaper:

> We seem to need improvement in our color work in three different lines: First, better artists for the originals; that is quite apparent here where artists are as common as they are rare at home. The artists, furthermore, to be successful, must obtain knowledge of the technique of three and four coloroto reproduction. It is impossible to have a journeyman obtain the same effects as an artist and yet not use the artist's original colors. Then, we must improve our reproduction processes.[19]

As a result of the need for news talent fluent with color, the *Chicago Tribune* hired fifty full-time staff artists by 1927. The staff artists still could not keep pace with readers' demand for color art, and the *Chicago Tribune* commissioned outside artists to create some of its Sunday section covers.[20]

The *Chicago Tribune's* printing nurtured a new epoch in American culture based on a visual discourse of color accessible to all people. American expressionism, an art movement that distills the emotional essences and ideas of an experience, was made possible through the symbolic use of color. Through various shapes and colors, new visual meanings constructed another view of the American landscape (Figure 5).

Gaar Williams, a popular *Chicago Tribune* artist, drew humorous cartoons on family life, such as "Among the Folks in History," serialized in black and white. This expressionistic painting extended to readers a view of national suffering after war that could only be communicated through color. [21] The glow of moonlight diagonally pours from the upper left to the right and focuses on a

solitary woman who appears to be kneeling at the tomb. Partially hidden by a shadow, she stands to place a wreath on the tomb. The soft, blue moonlight implies a dense fog or moist atmosphere that often shrouds the national cemetery. The tomb's shadow falls upon the grass to form a rectangular carpet, representing death. She steps on the carpet to show her respect. The pink tomb expresses bloodshed. But she is not alone or without hope, as indicated by the tall emerald trees that rise on the right side of the moonlight.

The subtle infusion of patriotic pride underpins this mother's grief. The left side of the tomb glows in white; red flowers cover the tomb's granite lid; and the blue wash of moist night air gently engulfs her. The text of a poem by V. Valerie Gates, "Unknown Soldier," is in a box, as if a headstone, placed in the lower left corner of the page. The last two lines of the poem read:

> Come softly at dusk. "My bravest one!
> Such a grand, grand grave for my little son!"

A male guard, perhaps a relative, on the left side of the streaming moonlight, obscured by night air, walks toward her. Even in her grief, the mother does not stand alone, but in honor.

Expressionism emphasizes emotional truths that may not be possible to depict through realism or any other genre. Art historian Sheldon Cheney in the 1930s explained that American Expressionists reacted against imitations of nature, which characterized the Post-Impressionists who preceded them. There were three wings of expressionism in the early twentieth century that developed new interpretations with color, according to Cheney. One leaned toward decorative expression with sensuous patterns and colors; another saw rhythmic

patterns in abstract shapes; and a third, like Williams, imported emotion into an image. The muscular vigor of color signified this fervent inter-war period, known as the Jazz Age *and* Machine Age.

Color Rotogravure and Color Letterpress Microphotographs

The authenticity of the *Chicago Tribune's* two primary printing methods was validated by a leading national expert on paper and printing, Dr. Cathleen A. Baker, senior paper conservator at the University of Michigan Library. In laboratory conditions commensurate with conservation standards, Dr. Baker scrutinized under magnification some of the exemplars of the *Chicago Tribune's* newsprint originals on March 19, 2008. Using magnification levels set at forty-five, fifteen, and twelve-and-a-half times normal vision, Dr. Baker found color letterpress and color rotogravure indicated by their characteristic inked and non-inked areas. (Figures 6 – 9).

A microphotograph of a painting by Walter Beech Humphrey of a boy reading an *Encyclopedia Britannica* was printed on a color rotogravure press on May 6, 1934, (See Figure 6) and revealed white tracks, which are non-inked areas on the etched printing plates, Dr. Baker reported.

A photomicrograph of a *Chicago Tribune* editorial cartoon on the front news page, by Carey C. Orr on January 9, 1942, shows relief printing created from a halftone of the drawing, and use of a zinc plate, according to Dr. Baker. The large spaces between color dots reveal the decreased ink densities. What appear to be seamless tonal areas are, in actuality, ink dots of varying diameters.

Color mixing can be seen in the red dots overlaying yellow ink, and the black dots, overlaying blue and red (Figure 7).

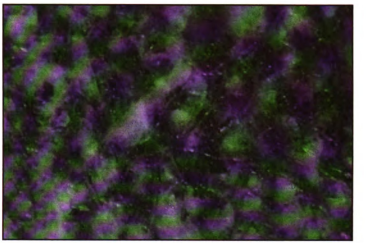

Figure 6. A forty-five times enlargement of a painting by Walter Beach Humphrey printed on a color rotogravure press by the *Chicago Tribune,* May 6, 1934.This detail shows a brown area immediately above the head of a boy reading in Figure 8. (Photo by Cathleen A. Baker, Senior Paper Conservator, University of Michigan Library.)

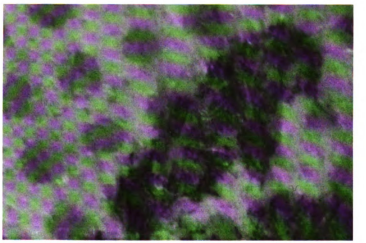

Figure 7. A forty-five times enlargement of a cartoon drawn by Carey C. Orr and printed on a color letterpress for the *Chicago Tribune,* January 9, 1942. This detail shows the blue-gray boot above the head of a Nazi soldier pictured in Figure 9. (Photo by Cathleen A. Baker, Senior Paper Conservator, University of Michigan Library.)

Figure 8. A painting by Walter Beach Humphrey printed on a color rotogravure press for the Chicago Tribune, May 6, 1934. A magnified section is pictured in Figure 6. (Michigan State University Collection, Reprinted with permission, *Chicago Tribune*)

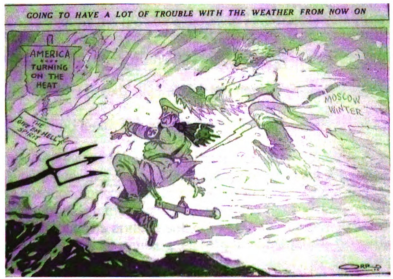

Figure 9. An editorial cartoon by Carey C. Orr printed on a color letterpress for the *Chicago Tribune*, January 9, 1942. A magnified section is pictured in Figure 7. (Michigan State University Collection, Reprinted with permission, *Chicago Tribune*)

Significance of the Color Rotogravure Press

The color rotogravure press enabled art and photographs to be finely reproduced for the masses. For the five-cent cost of a Sunday newspaper, readers could regularly enjoy news art and fine art with the credibility of color. Access to printed literature in color, previously viewed in expensive art books, journals, and museums, was routinely available in the *Chicago Tribune* in the early 1920s.

Because the *Chicago Tribune* could reach a broad cross section of consumers, color rotogravure turned into an advertising elixir. Soon after the *Chicago Tribune* introduced the press in 1920, the advertising space was sold out through 1921, and a one-year waiting list was begun.[22] Yetter's high-speed engraving method helped businesses popularize their products and helped consumers visualize what they might purchase in true-to-life colors. By 1922, the *Chicago Tribune* achieved the highest circulation of any daily in the nation and remained the leader until 1955, when the publisher died.[23] The machine was a long-awaited victory for printers' aspirations for mass-produced visuals with natural perspective and tone. *The Inland Printer* in 1922 wrote:

> While newspaper publishers everywhere wondered whether rotogravure in colors would ever be possible for Sunday supplement, the *Chicago Tribune* produced one for the first time on April 9, 1922....The superiority of rotogravure lies in the exceedingly great amount of ink it piles on the paper in the shadows and the soft gradations it can give in the highlights....The photographing, etching and presswork, particularly the register, on these rotogravure supplements in color are deserving of the highest praise.[24]

Editor & Publisher reported the *Chicago Tribune* invention:

> Early in the '20s, the *Tribune* announced the invention of a color rotogravure press and began the use of such color in the Sunday paper. In 1926-27, the modern era of newsprint color printing began with the *Tribune* publishing a house ad in two colors on Dec. 31, 1926. Later the *Tribune* pioneered advances in color photography, introduced full color news pictures, along with daily color cartoons on the front page.[25]

The *Chicago Tribune* had found the means for remaining competitive against magazines, with the luxury of time to use slow presses and coated papers, and against new media—film and radio. After the war, consumers longed to re-establish their lives and gain a sense of normalcy. They purchased automobiles, radios, and clothes on the time payment plan. Newspaper advertising and editorial stories increased purchases by helping consumers learn about and differentiate among modern products.

Between 1915 and 1929, newspaper advertising across the nation increased from approximately $275 million to $800 million.[26] The advertising success was not the *Chicago Tribune's* singular goal. The *Chicago Tribune* intended to transform its entire newspaper through modern color printing. After succeeding in the 1920s, McCormick brought together the nation's publishers a decade later in an attempt to transform the entire industry.[27] The *Chicago Tribune's* editor for the Sunday newspaper, A.M. Kennedy, told publishers that news color was the priority.

> The value of color seems to be lost in the rather weak material selected as the subject matter....We have made news the first consideration in our use of color. We try to make our color pages a very vital part of the newspaper and not merely a decoration.[28]

The high-speed engraving method removed a visual barrier that enabled readers to collectively share images similar to the world they actually viewed. Currently, color rotogravure publishing remains the pre-eminent method for mass-producing fine art and pictures. Effective for large press runs requiring high quality, color rotogravure accounts for 19 percent of the U.S. periodical market and 60 percent of the European market.[29]

John C. Yetter and the Chicago Tribune

Yetter's family legacy at the *Chicago Tribune* extended back to Medill. Born in Indiana, Yetter was from a family of printers. His father, Miles L. Yetter, was a printer and news correspondent who covered the Civil War for the *Chicago Tribune.* His mother, Frances, was married to a prominent small-town publisher, William Mitchell, of the *Hancock Democrat* in Greenfield, Indiana.

Sympathetic to the Union, the *Hancock Democrat's* print shop survived several attempts by Southern sympathizers to burn it. Yetter visited his uncle often, exchanging printing ideas, and he swam in the Indiana creek glamorized in the poem "The Ole Swimmin' Hole," written by nineteenth-century poet James Whitcomb Riley.

Mitchell lived next door to Riley, who commemorated the *Chicago Tribune's* 1897 anniversary by writing a verse for one of its color section covers. The *Chicago Tribune* and *New York Daily News* syndicated Riley's most famous poem, "Little Orphan Annie," which became a national comic strip with the same name in 1924. Prior to the advent of professional film, Mitchell used a

photography and photoengraving process for color with glass plate negatives, as the *Chicago Tribune* did.[30]

The *Chicago Tribune* hired Yetter in 1899 to print a color comics section. By 1912, his weekly salary was $50. Following his invention of the color rotogravure press, he earned 25 percent of the profits on the patent in exchange for selling his rights for $5 to the *Chicago Tribune.* And his weekly $50 salary doubled. [31] Yetter's oldest son, Louis, worked at the *Chicago Tribune's* ink plant with his father. His youngest son, Frank, started the color rotogravure print shop for Pulitzer's *St. Louis Post-Dispatch,*[32] which celebrated its golden anniversary with 72 pages of color rotogravure art.[33]

Single-Tone Rotogravure

The word "rotogravure" combines two printing methods that include rotating cylinders to achieve high speed and slow gravure to impart perspective. Rotogravure for a single tone of ink was invented in Germany by Ernst Rolffs and Eduard Mertens, who found the means of carving images beneath the surfaces of pliable metal plates that could wrap around a rotating press cylinder. Revolving cylinders produced the speed in newspaper printing that was unachievable with flat-plate printing presses.

The single-tone rotogravure in 1910 first was used by a German newspaper, *Freiburger Zeitung*, and in 1912, it was used by the *Illustrated London News.*[34] Mertens' and Rolffs' press used three different depths of microscopic cups that held the ink. The varying depths enabled highlights, middle tones, and shadings to be applied to images at a high rate of speed for the first

time. Natural shadows, which imparted depth and perspective, were possible, but only in one color.

An earlier process created to print calico cloth with this sheet-fed method was invented by Karl Klic of Germany;[35] but he kept this gravure press secret for many years. The Klic gravure did not make use of rotating plates, a critical instrument in the mass production of newspapers. Until the invention of single-tone rotogravure, newspaper pictures were limited to two-dimensional line drawings and low-resolution photographs. The world according to newspapers was flat—a vision that differed from the natural experience of life.

Multicolor Rotogravure

The military supremacy of the Allies inspired confidence in America's science, higher education, and technology, but the same pride did not transfer to art and culture. Americans had no style, said Herbert Hoover, secretary of commerce in 1925. He declined an invitation for America to participate in the Paris Exposition of Decorative Arts, a major industrial fair where artists set trends for the next two decades. The international event featured designs for consumer goods, home products, and defined modern styles.[36]

Hoover's art emissary, Louis Rorimer, appointed a U.S. commission to take lessons from Europe, instead of promoting the American lifestyle in a pavilion. The *New York Times* wrote:

> While he regretted this, (not sponsoring an American pavilion) he felt that the United States really had nothing of particular value in original design to offer, and said this country must continue to follow the lead of the French, German, Scandinavian and Slavic originators of design. U.S. artists were largely "copyists," but they had made "great strides," he said.[37]

Another indicator of American's cultural inferiority was found in the amount of art imports following the war. Purchases of art from Europe steadily climbed and reached an all-time high of $33 million in 1923—only $4 million of which was art by Americans living abroad, such as in the colonies of Paris. Imported works were generally at least 100 years old.[38]

Could a melting-pot nation not regarded as a pioneer of culture innovate and not imitate Europeans with aesthetic traditions (and elitism) that spanned centuries? The *Chicago Tribune* employees had a fighting spirit to succeed and define a new place for themselves in news. Unprecedented to newspapers, they collectively invented whatever they needed to succeed. The goal was to achieve pictorial color.

If a process was available, but not technologically ready for mass production, they improved it, such as a mechanism for portable color news cameras by Godfrey Lundberg, who used glass filters long before film was available. (See Appendix A, US1624959). The *Chicago Tribune* published color news photos regularly in the 1920s and 1930s—long before Eastman Kodak in 1946 introduced color film that professionals could develop themselves.[39]

The inter-war period marked the *Chicago Tribune's* most fervent creative activities. In the 1920s, employees filed 26 patents; in the 1930s, they filed 37 (See Appendix A). Yetter conducted his initial experiments to develop color rotogravure in a series of experiments between 1914 and 1919. He continued to refine it over the next two decades. The color rotogravure and other color technologies affected the entire continuum of printing and newspaper work: press

room design, raw materials, newsprint, inks, advertising, distribution, and original content.

Before the color rotogravure could function effectively in the press room, a system was needed to prevent stop losses—that is, stopping other presses to insert unique sections. The *Chicago Tribune's* complex newspaper consisted of a magazine, small comic book, black-and-white news sections of varying page amounts, and various color sections.

How to print, fold, and insert them together without stopping a press run was important to labor and material expenditures—and for meeting news deadlines. The press room design, called the McCormick Press, became the industry standard in printing plants across the nation. This was not one machine, but an installation method that allowed all printing presses in a newsroom to perform different tasks simultaneously without waste and work stoppages (See Appendix A, US1581132).[40]

Theodore Schultz, an engraver, began working at the *Chicago Tribune* in 1892. He invented methods to improve rotogravure registration problems caused by the moisture changes in the newsprint, humidity controls in the pressroom, machinery heat, etc. (See Appendix A, US1538908).[41]

The new color rotogravure press required the invention of new ink and paper technologies. Yetter designed and made the inks to work with the color rotogravure press. McCormick featured Yetter and Schultz on the company newsletter's front pages as quickly as the work was done. The successes were

shared. Recognition and a percentage of the profits spurred intense creativity by the *Chicago Tribune's* employees:

> Ted Schultz and John Yetter thought they could solve the problem and at great expense the experimental machinery was built and the process perfected, making possible on a high speed press the wonderful reproduction of pictures in color. These two men had to work out a system for drying the ink of one color before the next color was applied, a second or two later....[42]

> John Yetter and Ted Schultz have worked together for many months figuring out a practical method of coloroto. The success of the *Tribune's* coloroto work has surprised and interested publishers throughout Europe as well as America.[43]

Privately, McCormick had his doubts. He could not afford to be wrong with Hearst's competition in Chicago. Six months before praising Yetter and Schultz in 1922, he questioned if the presses could compete with Hearst's and confided in Joseph Patterson:

> We have both been successful: ourselves in roto and Hearst in color. Our own efforts at color advertising have been handicapped by poor printing. I hope our new press is as much better than Hearst's as his press is better than our old one. I hope so because I do not know just how good our new press is....[44]

Hearst appealed to racism in the cartoons published in color at the turn of the century. Ethnic insults permeated Hearst's visual art, such as the weekly cartoon about an African-American family named "Blackberry" at the turn of the century (See Figure 6). The negative stigmas, situated in daily living, pervaded cartoon depictions: "The Blackberries Go to the Country" and "The Blackberries Go Bathing."

The circulation of Hearst's *New York Journal* with its *American Humorist* cartoon insert exceeded 900,000 before the turn of the century, but his fabricated

news illustrations during the Spanish-American War in 1898 began diminishing the number of readers. Yellow journalism poised color illustrations as dubious news. A struggling *New York Tribune*[1] tried including color art to boost its circulation, but did not succeed. The approach was not integral to its journalism strategy.

A 1919 "Gravure Section" featured commissioned paintings finely printed on heavy grade paper, not newsprint. "The City's Fountain of Youth" by Gustave Flasschoen depicted New York on a hot summer day (Figure 6). Art was used briefly in an attempt to boost circulation. Sales stagnated and by 1924, the *New York Tribune* and *New York Herald* merged.[45]

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[1] The *New York Tribune* printed color gravure art with a sheet-fed press in 1919. With magnification ten times the normal vision, this researcher found no discrete characteristics of color rotogravure by the *New York Tribune:* 1) There were no holes in the printed paper caused by the mechanical grippers on the rotogravure's rotating cylinders; 2) A high-grade paper was used as indicated by its weight and texture instead of newsprint. The *New York Tribune* in Figure 6 is a broadsheet with heavy paper stock, typical of sheet-fed presses.

One other periodical, the *New York Times,* published a small, limited edition of full-color art on Easter (March 29, 1914). The *New York Times* used either a German-made press created for one color of ink, necessitating the need for stopping the presses to clean the machine, and re-ink it for each primary color. Or it used a sheet-fed, flatbed gravure press, which also had to be stopped and cleaned between applications of primary ink colors.

Figure 6. "The City's Fountain of Youth," by Gustave Flasschoen, *New York Tribune,* August 19, 1919. (Library of Congress, Reprinted with permission).

Chicago Tribune Newsprint

The *Chicago Tribune's* milling techniques brilliantly reflected color inks from the newsprint. Mill designer Warren Curtis Jr. of the Ontario Paper Co.—influenced by his father, inventor Warren Curtis, and Julius Jaeger of North Tonawanda—created novel papers and often consulted with the *Chicago Tribune's* artists and printers to test the effects (Appendix A).[46] The freshly milled paper was used by the *Chicago Tribune*, *New York Daily News*, and a short-lived magazine, *Liberty,* founded to compete with the *Saturday Evening Post.*[47]

The newsprint consisted of a mix of New York hardwood trees, birches, and poplars and soft Canadian spruces and balsams, cooked with bleach to a pulp. The hardwoods kept enough ink on the surface of the paper for luminosity, while the softwoods added some absorbency to prevent smearing. A higher

proportion of softwoods in the rotogravure paper would increase absorption of the inks, as if it were cotton, and the luminosity would be lost as well. The *Chicago Tribune's* goal was never to produce the most expensive and best paper. The goal was to make the finest possible newsprint in the least expensive way. At one point the *Chicago Tribune* used as many as ten different types of trees and several different paper-making recipes.[48]

> The customers continually asked for more brightness in the sheet, but more brightness always brought with it an increase in "show-through," the condition where the printing on one side could be seen from the other. The customers objected to excessive show-through as much as they complained about lack of brightness.[49]

The reflections of light waves off these elegant inks and newsprints respond similarly to the reverberations of sound waves that emanate from a Steinway grand piano. Musical tones are created when the action of the keys causes the hammers to strike the copper-wound and steel strings, resulting in complex sound waves that are amplified and enriched by the soundboard, made only from the spruces of Sitka, Alaska.

Rich, deep tones slowly rise and reflect off the lid, which is composed of hardwood trees, and the faster, direct sound waves travel over the audience. The deep, slow waves and the fast, direct waves mix, creating the rich sonority that uniquely characterizes the Steinway grand.[50] The color rotogravure pictures were mass-produced art and news. The comparison is not between the *Chicago Tribune* and the performance of a sonata or concerto, or to the Steinway grand piano, but to the actions of light waves and sound waves with similar properties in the electromagnetic field that bring stirring effects.

The *Chicago Tribune's* mill designs, newsprint research, development of hydroelectric power for precision milling, use of freshly baled trees, inventions for milling and testing, and novel chemical formulas were unprecedented by a publisher.[51]

Science brought precision, and color rotogravure treated readers to exquisite details, enhanced through printing registration. One outcome among *Chicago Tribune* employees was further national pride. Yetter frequently teamed up with his assistant, Otto Wolf, a machine designer and inventor from Germany (Appendix A, US1504409). Wolf worked for printing press manufacturers Robert Hoe Co. and Goss Co., before joining the *Chicago Tribune* in 1920.[52]

Ever since the Great Exhibition of the Works of Industry of All Nations in London in 1851, examples of new forms of printing have been displayed in international fairs.[53] The *Chicago Tribune* celebrated printers, the free press, art, and science as one on Constitution Day in 1934. On Sunday, September 16, they published an illuminated manuscript of the U.S. Constitution (See Figure 8), and printed an extra 300,000 copies to place in the hands of Chicago schoolchildren. The double-page spread carried the complete text of the U.S. Constitution and detailed pictorial engravings of the American Revolution. The flip pages carried the U.S. Amendments. Nestore Leoni illuminated manuscripts in Italy before immigrating to the United States at the turn of the century. Around 1909, he painted the U.S. Constitution in the rare, intricate style of the sixteenth-century.

The cobalt blue inks coated President George Washington, red inks scrolled around pictures of hard-wrought freedom, and clean, white paper gleamed under the sepia-printed words. Visitors to the World's Fair opened their newspapers and held a piece of American history, and the art and science of the *Chicago Tribune's* employees.

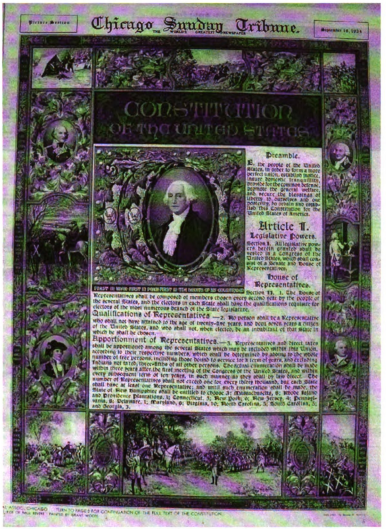

Figure 9. A painting of the U.S. Constitution by Nestore Leoni, circa 1909, published by the *Chicago Tribune* on September 16, 1934, using the employees' innovations for color rotogravure printing.

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CHAPTER VI: SOCIAL EFFECTS OF THE *CHICAGO TRIBUNE'S* COLOR ROTOGRAVURES—MUSEUMS WITHOUT WALLS

> *Color is a democratic thing and a scientific thing, just as well as it is an emotional and exclusive thing.*
> —Faber Birren, *Printer's Ink Monthly,* 1929[1]

At its depths in 1933 and 1934, the Great Depression left one quarter of Americans unemployed.[2] Violence erupted throughout the nation, as labor unions clashed with employers over low pay or no pay for workers.

In an exchange of tear gas and bullets, a bloody riot on the San Francisco docks pitted 10,000 longshoremen and 15,000 marine workers against the National Guard.[3] One thousand striking hotel and restaurant union workers with their children and wives battled police in New York at the Waldorf Astoria hotel.[4] In Chicago, 5,000 school teachers marched to protest eight months of work without pay. "When do we eat," the teachers' placards read.[5] And in Taylorsville, Illinois, a mine workers' protest led to the bombing of a free soup kitchen for children.

President Franklin D. Roosevelt's economic solution, the National Industrial Recovery Act, known as the New Deal, was enacted in 1933 but had not yet taken effect. Adolph Hitler seized power in Germany in 1933 and began building concentration camps to conduct his ethnic cleansing program.

The world was falling apart faster than it was coming together in the early 1930s. An editorial in the *Chicago Defender* newspaper asked why women are never seen at soup kitchens or bread lines. They would rather starve than lose pride, the editorial concluded.[6]

The luxurious color paintings on the covers of the *Chicago Tribune's* rotogravure section uplifted the spirits of bruised souls and delivered some escapism. A 1932 survey conducted by George H. Gallup found that the rotogravure sections of newspapers, including those printed in single colors, were the most read sections, and three times more likely to be seen by readers than any other section.[7] The *Chicago Tribune's* circulation soared during the Great Depression. Families not interested in art, could enjoy comic strip characters like detective Dick Tracy. "*The Tribune* is not only high class and low class, it is 'highbrow' and 'lowbrow,'" quipped publisher Robert R. McCormick.

For the mere cost of a newspaper, *Chicago Tribune* readers became owners of art reproductions that they could frame to decorate their homes. Readers could also purchase framed reproductions that had no folds at the newspaper's offices. The Sunday newspaper editor, A.M. Kennedy, reported that he was surprised that the extra printed art without folds always sold out:

> We began selling framed reproductions of art in glass in 1934 without a fold on them. They were 40 cents over the counter... At the time of the pennant race we offered prints of the Cubs—as we did of these movie girls—but nobody seems to care much for the movie stars, at least not enough to hang pictures of them in their homes.[8]

The newspaper's mass-produced art was essentially a "museum without walls." Individuals could respond with their likes and dislikes, and they were not as dependent on the authority of museum curators who chose art works for the permanent collections of institutions.

The impermanence of newspapers greatly benefited the democracy of color experienced through diverse art reproductions. But were newspaper art

editors the equivalent of curators? And if they were, would readers yield full control and allow editors to be the arbiters of the public's impermanent collection? One quarter of Chicagoans in 1930 were white persons born in other nations,[9] and included a number of artists with varied approaches and styles. Whether artists were émigrés or native-born, their works helped shape the American culture and art editors could detract or elevate their expressive forms.

With a circulation of 858,000 in 1932 (not including the syndicated art and stories), the *Chicago Tribune's* art choices were the mainstream cultural diet of daily living.[10] Yet among the publisher's own relatives, no consensus formed on what constituted art. The publisher's cousin, Eleanor Jewett, was art editor with considerable power to elevate or diminish creative works. McCormick underscored the art editor's limited authority in a *Chicago Tribune* memo:[11]

> March 22, 1933
>
> Dear Eleanor:
>
> *The Tribune* has no sacred cows anywhere. Our criticisms will be based on the merits. I am sending back the enclosed photographs. I have seen the original.
>
> Sincerely,
> Bert

The creative work in question is not known, but McCormick's tacit control shifts attention to the significance of art to major metropolitan newspaper, and to the publisher, whose friends and relatives are major collectors.

The decision to feature the expressionistic painting of Hungarian-born artist, Alexander Raymond Katz, on Sunday, April 22, 1934, launched his career and helped advance American expressionism. His painting won first prize in the

Chicago World's Fair poster contest, and his aesthetics broke tradition. The Century of Progress, colloquially known as the Chicago World's Fair, employed 10,000 people, attracted 27 and 21 million visitors in 1933 and 1934, respectively.[12] McCormick hoped the privately funded venture would serve as a model, wholly different from the New Deal's government-funded approach to recovery. Ironically, Katz was a beneficiary of both private and public initiatives. Before his rise as a stained-glass muralist, he painted for the WPA in order to survive.

The 1934 World's Fair Poster

Miss Chicago donned a doughboy's helmet and stretched her attenuated arm like an octopus tentacle up and around her head, and pointed to the opening date of the 1934 World's Fair.[13] At first glance, she appeared as an aquatic wonder, swimming in a cobalt blue sea, adrift in emerald and gold algae. "See. Hear. Play," she invited Fair-goers with words painted in gold (See figure 12).

Miss Chicago's doughboy's helmet in the 1934 poster reflected the pride Americans felt about the war—the military's ingenuity in battle and civilians' resourcefulness in supporting the effort on the home front. In peace time, the same creative energy fulminated into "the machine age" and the newly acquired pleasure of speed—transcontinental air travel, news wires transmitting global information, mass-produced cars, and high-speed newspaper presses.

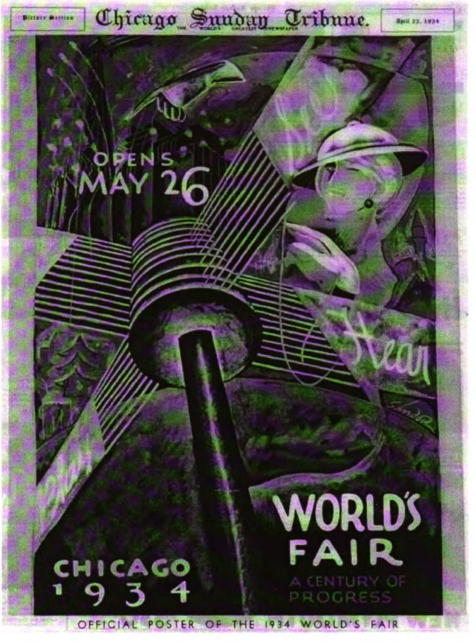

Figure 12. The 1934 Century of Progress official poster painted by the muralist and stained-glass artist, A. Raymond Katz, was featured in the *Chicago Tribune*, April 22, 1934 (Michigan State University Collection, Reprinted with permission of *Chicago Tribune*).

She directs the reader's attention to what is not gold algae but an electric lamppost that radiates light in four directions over fertile earth. Her left hand gracefully shapes a "U" and extends under her chin to direct readers to the Fair's opening day, "May 26." The "U" signifies "Cheth," the cursive eighth letter of the Hebrew alphabet, to represent infinity and life's animating force. Spiritual meaning embedded in colorful shapes was one component of Katz's expressive palette.[14]

Through Miss Chicago's symbolic gesture, Katz compared scientific knowledge achieved through the discovery of electricity to the light of wisdom achieved through the human transformation of the mind.[15] The picture's focal point is a streetlamp at the center that lifts viewers' eyes along the light, emanating in four directions to the canvas' edge and suggests infinity, and unlimited pursuit. The stars and electric lights commingle.

The artist's vantage point is from a distant place in the night sky, and readers can see one-half of the earth's rounding horizon. Flames shoot in a horizontal line above the text, "World's Fair," inscribed in the lower-right corner. The flames convey Moses' Biblical journey out of Egypt and his spiritual awakening. In the wilderness, he came upon a burning bush that never could be consumed in fire. He interpreted this as a sign of belief, and his ability to find a pathway out of oppression to lead others to a land of milk and honey.[16]

The deep blue night expresses sublimity through the stars and lamppost. A ragged gold line beneath the burning bush represents a serpent's tail that horizontally races under the flames. In "Exodus," Moses grabbed the serpent's

tail and turned it into a walking stick to engender others to believe that he could guide them out of adversity.[17]

His was not the poster aesthetics of Europe with cool rigid geometric forms. Katz captured the spirit of the Chicago World's Fair theme with a free form as if the figures were at sea. Color signified modern living and hope in the depth of the Great Depression, and his emerald and cobalt blue shapes interpreted that for viewers. The program book introduced the importance of color to the Fair and in daily living:

> Bold splashes of color seem almost articulate with the spirit of carnival, a flaming expression of fun, frivolity which, after all is said and done, is of the very essence of a Fair. Joseph Urban, famous architect and stage designer, sought to achieve a harmony of color on building exteriors that might also express the Exposition's deeper, more lasting implications and purposes....Were one to pose as a prophet, he might well say that here is suggestion of a future American color harmony, distinctive, bold, that could change neutral sections of cities and towns, bring cheer and liveliness to workers in factories, perhaps revolutionize in time the conception of color effects in homes.[18]

The Fair collected the latest innovations in science and art from other nations, and it displayed creative possibilities for future innovations. While the 1893 Columbian Exposition, known as the "White City," glowed with 93,000 white lights, the twentieth century fairs in Chicago offered pools of neon colors lit with gaseous tubes.

The 1934 Fair was a "miracle of light" with electrified colorful floodlights that simulated "fountains, cascading water falls, or brilliant skies at sunset."[19] Visitors were welcomed to the greatest display of lights:

> As you mingle with the throngs at night, you stand in the greatest flood of colored light that any equal area, or any city of the world, has ever produced.[20]

Color infused everyday living with an excitement that could be seen in newspapers, magazines and home décor in 1the 1930s. The first color movie, *Becky Sharp,* premiered in an experimental stage in 1935, but Hollywood was abuzz with talk of color innovations as early as 1914.[21] Eastman Kodak Co. mass-produced flexible color film for amateur photography in 1935, yet pictorial color had been anticipated ever since inventors in Chicago and Berlin had conducted successful experiments in the 1890s.[22]

The poster for the 1933 Chicago World's Fair conformed to the austere aesthetics set at the Paris Expo in the previous decade. Artist George B. Petty's prize poster the previous year adopted the rigid style that was commensurate with the norms of world-class designers (Figure 13). He divided his canvas in four horizontal panels with monotones, from top to bottom in white, red, white and black.[23] A stoic face of a native-American Indian chief with an eagle-feathered headdress is at center left and spans the two upper panels. The tribal chief represents Chicago in 1833, and has pinkish skin to diminish the image into the background. The face of Miss Chicago of 1933 is the focal point at center.

Petty's vision has Miss Chicago with the same face as the tribal chief, but her crown is that of the American eagle, emblazoned with the city's motto, "I Will." An emotionless portrait, she looks more like a statue or a coin. She curls her left finger, inviting people to the fair. "Come! Chicago World's Fair," read large white block letters against the black panel. The total lack of movement, the rigid forms locked inside the horizontal panels, characterizes this poster.

Deco aesthetics, like Petty's art poster, drew on a myriad of art movements: Cubism, Futurism, Constructivism, and the Bauhaus School, for example. Streamlined geometric forms, dominant block letters, bold colors and an emotionless severity were representative of European Deco designs. The Deco style permeated all types of commercial ventures, including architecture, furniture, advertising, fashions, and magazine covers.[24]

That Petty created according to the ascribed expectations of the design community, as the critical eyes of the international community viewed his work, was not surprising. More surprising is that Katz broke away from European aesthetic domination to express his vision with an independent American voice. At age 38, Katz entered the Fair's poster and mural competition after architect Frank Lloyd Wright's encouraged him to do so. In a retrospective of his career years later, the journal, *American Artist* called him a "master of mixed techniques," and the inventor of mixed media techniques.[25]

The chairman of the Fair's art committee, Chauncey McCormick, was a cousin and neighbor of the *Chicago Tribune's* publisher, Robert McCormick.[26] Amy McCormick, the publisher's wife, an amateur painter, entertained the Fair's art committee judges in her home. A collector of European art, Amy purchased painting by Pablo Picasso, Paul Cezanne and Edgar Degas, as gifts to her husband, who gave primary attention to American artists in the newspaper. [27]

The 1933, the Fair awarded Katz a commission to paint a modern religious mural, "Ten Commandments," which integrated spiritual meanings of the Hebrew alphabet.[28]

An Art Editor's Power and Demise

Jewett opposed the New Deal's Works Progress Administration's art program [29] and many of its artists, but not Katz. She reported news of his exhibits, even after he moved to New York in 1938. She wrote:

> A. Raymond Katz, a talented Chicago artist, enjoyed a one man exhibit at the Edgewater Beach hotel recently of line drawings, tempura and water colors. Mr. Katz is imaginative and clever. His work is invariably intriguing, and this last show of his is no exception. It closed Friday to the regret of many visitors, who found in it much subtle and decorative work.[30]
>
> Each one is truly an adventure into imaginative composition. There are some frightening compositions among them and some that are delightful. The artist's flair for color and line never leave him.[31]

Figure 13. The official poster for the Century of Progress, Chicago World's Fair in 1933, painted by George Petty (Chicago History Museum, Reprinted with permission).

Opposed to modern works that appeared chaotic and abstract, Jewett also took exception to artists known to be dissolute. A national movement known as "Sanity in Art" formalized opposition against modernism, and she championed the cause. Founded in 1936, the Sanity in Art organization was headed by Mrs. Josephine Logan, whose husband, Frank, headed the Art Institute of Chicago. The group's intentions, she said, were to bring "rationalism, sanity and soundness' back into art and "censure modern art" against the grotesqueries that masquerade as art."[32]

Jewett also served on the Sanity of Art board and, in adherence to its tenets, she militated against surrealism and artists like Pablo Picasso, Paul Cezanne and Paul Gauguin. When Picasso's mural, "Guernica," on the atrocities of the Spanish Civil War went on display in Chicago in 1939, she reported "distinct disappointment."

> It is like a huge unfinished cartoon, the product of a juvenile brain, sick from an overdose of fairy stories in which ogres and dragons have played too conspicuous a part.[33]

Editor and critic, Jewett joined the newspaper in 1917 and guided its visual arts for 38 years. A sensitive poet, Jewett was married to the *Chicago Tribune's* color photographer and inventor, Godfrey Lundberg. Her sister, Emita, married to symphony conductor Karl Krueger, was murdered in Hollywood, California, in 1938.[34] With marital discord at home, she depended on a protective world buoyed by compliments and courtesies from her public position.

> My dear Miss Jewett:
> For several years now I have admired your art criticism, but you have done it this time! I think the courage and nerve you have shown...[35]

> Dear Eleanor Jewett:
> In all this confusion many an artist who otherwise would lose heart, finds encouragement in the support you have all along give to the true standards in art. I feel that the artists of Chicago in particular have much to be thankful to you for also taking up their cause—trying for more fairness and impartiality on the part of directors and juries...[36]

The social disparities of the era aligned artists with labor, and the WPA artists opposed their low wages and conditions. New York police jailed 83 artists for protesting their meager subsistence wages for painting public art.[37]

The WPA art project began in Illinois in 1935 with projects to create posters on safety and murals for the Chicago Public Library.[38] A Chicago art show mounted by WPA artists in 1940 found no dulcet words in her review. She reprinted a review from the Milwaukee Journal on WPA artists, adding, "It is as true for Chicago as for Milwaukee, and as true for the rest of the nation."

> One activity of the government which has been a sore spot with those who care for creative art has been the so-called art turned out by WPA projects. In the Chicago region a little that is good has been achieved, but the vast majority of the pictures and sculpture turned out has been of inferior quality...It was a mess that interested persons found at the airport. There were murals of the Wright brothers in Russian peasant costume, there was a likeness of Joseph Stalin done into one composition, the red star was used as a symbol on some navy planes...the murals constitute propaganda.[39]

WPA artists levied a prolonged postcard campaign against Jewett, who read the complaints without expecting any backlash. She was standing up for democracy, she explained in a pastoral consultation at the Winnetka Congregational Church on December 19, 1940.[40] An art patron observed Jewett in demise, while hearing her speak at a luncheon in 1941.

> She referred to an avalanche of WPA propaganda or protest cards which were descending on the *Chicago Tribune* to discredit her....At that time I sensed something very tense about her, as if she were under some great

> strain....As for the insane crudities and the manifestations of disordered minds as shown by WPA projects (in general) please, please You *Chicago Tribune* save us therfrom [sic][41]

Despite the company of like-minded patrons, Jewett plunged into a psychic crisis that left her incapacitated and institutionalized in a series of sanitariums and hospitals for more than a year, before she returned to work. One physician wrote Jewett "presented the typical flight of ideas which points to a psychosis."[42]

With and Without Walls

Despite Jewett's antipathy to abstract and surrealistic art, her pictorial choices increased access to major works—and often controversial ones. Both before and after Sanity in Art was founded in 1936, she awakened readers to the dramatic role artists bring with their interpretations of American culture. The art elided by her editorial work cannot fully be known. How Jewett sanctioned and censored art can be seen through a negative review of Richard A. Chase, a portrait artist, she, otherwise, extolled.

Chase rendered elegant oil paintings of Chicago civic leaders and socialites. His goal was also to paint urban scenes of working Chicago with its industrial steel vitality, and the *Chicago Tribune* created color rotogravures of many of his realistic paintings. As late as 1949, when modernism was mainstream, by then, she addressed his exploration, as if he were a child:

> Mr. Chase has had a good trip into the realms of the Arabian Nights. His painting reminds one of Maxfield Parrish in their imaginative, spun sugar quality, figures moving thru French and Italian landscapes where castles are a commonplace and gardens taken for granted. We really prefer Mr. Chase in his usual concise, realistic manner dealing with steel works,

bridges, or street scenes, and we like his portraits. This present holiday of his, however, must not be held against him. At least he had fun.[43]

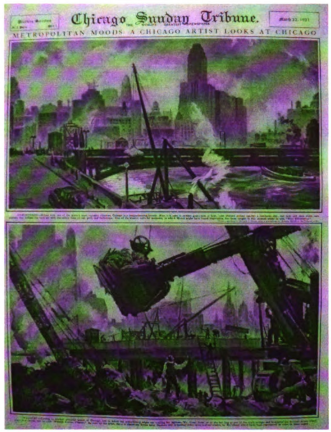

Figure 14. The *Chicago Tribune* published *Blue Silhouettes,* top, and *Wabash Avenue Viaduct* by Richard A. Chase on March 22, 1931 (Michigan State University Collection, Reprinted with permission of *Chicago Tribune*).

From Columbus, Kansas, Chase worked behind a soda fountain, following high school graduation and saved his wages to enroll in the Art Institute of Chicago in the 1930s. The Wabash Avenue viaduct (Figure 14) depicted men with jobs in the Great Depression—men climbing ladders, raising steel girders, seeing billowing clouds in white, pink and blue. He spent 60 years painting Chicago and building a legacy of regional art.

A painter who needed reviews by the *Chicago Tribune* would need to create realistic or expressionistic art to obtain any attention at all. The inconsistent values displayed in the *Chicago Tribune,* were to the public's advantage.

The differences on art within the McCormick family favored the *Chicago Tribune's* readers with some pluralism. Chauncey McCormick, a trustee and leader at the Art Institute, opposed the Sanity in Art movement. Amy McCormick's modern painting by Cezanne, *The Bathers,* was reminiscent of numerous water scenes painted by Paul Chabas, although the genres differed (Figure 15).

Figure 15. Two paintings by French artist Paul Chabas, *Hidden Away,* top, and *Twilight,* published in the *Chicago Tribune,* August 2, 1931. His works were once the subject of censorship in Chicago and New York. (Michigan State University Collection, Reprinted with permission of *Chicago Tribune*).[44]

In 1931, the *Chicago Tribune* reproduced two French paintings of nude pre-adolescent girls bathing in lakes. Created by Chabas, *Hidden Away* and *Twilight* were among many nude paintings published by the *Chicago Tribune* on Sunday section covers.

Chabas' most famous painting, *September Morn,* was also a nude portrait of a girl in a lake, and it was at the center of a judicial firestorm in 1913. Chicago officials, believing *September Morn* was indecent took a local art dealer to court, for placing it in a storefront window. A judge found Chabas' painting to be art and not vice.[45] By publishing the similar Chabas works, the *Chicago Tribune* increased awareness about the artist and challenged personal values about nudity. His painting, *Mirthful Frolics,* won the first prize of the Paris Salon in 1899, a leading international exposition. The moral controversies about his paintings increased their reproductions and his acclaim.[46]

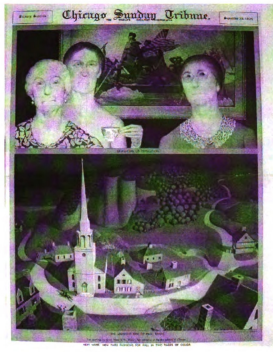

Figure 16. Two paintings by Grant Wood, *Daughters* of *Revolution,* top and *Midnight Ride of Paul Revere,* were published by the *Chicago Tribune*, September 23, 1934. The 1934 Art Masterpieces Exhibition at the Chicago World's Fair featured *Daughters of Revolution.* (Michigan State University Collection, Reprinted with Permission of *Chicago Tribune*).

In association with the Chicago World's Fair, 25 museums and 225 private collectors contributed masterpieces to what the *New York Times* noted was the "most important art exhibition ever held in this country." Managed by the Art Institute of Chicago, the exhibition mounted masterpieces dating from the thirteenth century to the twentieth century and different works were displayed in 1933 and 1934.[47] One of the most controversial American paintings in the first part of the twentieth century, *Daughters of Revolution* by Grant Wood of Cedar Rapids, Iowa, drew the most viewers.

Created in 1932, *Daughters of Revolution* diminished the patriotism of the Iowa members of the Daughters of the American Revolution, but introduced a national conversation on different views of patriotism. The artist, a member of the American Legion, depicted three DAR members smugly sipping tea, while they stand indifferently before one of the most famous paintings of the American Revolution—*Washington Crossing the Delaware* by Emanuel Leutze.[48] The *Chicago Daily News*' art critic, Clarence J. Bulliet wrote:

> A political satire is ephemeral, and is apt to be forgotten after the next election. But a social lampoon, like this, has in it elements of eternity.[49]

The artist's spare two-dimensional realism brought a modern update to the eighteenth-century American Colonial style of painting that portrays figures glumly facing directly front without perspective. *American Gothic* is Wood's most famous painting, and was featured the previous year at the World's Fair.

Few newspapers had the capability of publishing color rotogravures, and *American Gothic* was not mass produced in color until after Daughters of the Revolution, and even then, it was produced by a magazine. The *Chicago Tribune* treated art as news, and *Daughters of Revolution* was an implicit suggestion for viewers to consider the nature of democracy and Midwestern art. Wood told Chicago school children: There is just as much art to be put on canvas right in our little towns of 5,000 as there is in the Latin quarter of Paris."[50]

Figure 17. *Between Rounds,* published by the *Chicago Tribune,* May 19, 1935, by Thomas Eakins was painted in 1899 and exhibited at the 1934 Art Masterpieces Exhibition at the Chicago World's Fair (Michigan State University Collection, Reprinted with Permission of *Chicago Tribune*).

American realism provides a genre that is intrinsic to journalism—paintings with photographic details. Amid royal commissioned paintings by eighteenth century Spain's Francisco Goya, and England's aristocratic portrait artist, Thomas Gainsborough, were the ruggedly independent American realists. The *Chicago Tribune's* publication of Thomas Eakins' *Between Rounds* dignified the sweat of hard-working Americans competing in a boxing match. The *Chicago Tribune's* mass production of the Eakins' painting was a political statement, not as overt as the editorial texts, but one more readily accepted. Newspaper editors deliberate and carefully consider the art and graphics that are featured to

respond to readers' interests and current events. For example, the editors realized the popularity of paintings of seafaring ships, because its public service office repeatedly sold out the hundreds of extra single sheets printed just for framing. As a result, the *Chicago Tribune* reproduced a series of sea vessels painted in watercolors by Frank Vining Smith to enable collectors to decorate their homes with a framed set.[51]

Between Rounds in subtle browns challenged the long-held beliefs of readers' concepts of beauty (Figure 17).[52] The American realists with the direct honesty of their artistic visions demanded attention, and the *Chicago Tribune* listened. When asked about how the newspaper rose to its success, publisher McCormick retorted: "It ain't Orphan Annie. It's the hair on our chest." The original content of the *Chicago Tribune* sought realities, not abstractions of surrealistic images of a chaotic world.

The *Chicago Tribune* principal concern in the Great Depression was stabilizing the economic base of the city to remain in business. Any pictorial depictions of extreme behavior, poverty, labor riots, radicalism, and changing mores could appeal to the disintegration of form in the arts *and* society.

By the late 1920s, the *St. Louis Post-Dispatch* began publishing color rotogravures with the help of Yetter's youngest son, Frank. *The Washington Post* printed color gravures on a sheet-fed press in 1927, and imitating the Chicago Tribune's slogan, "World's Greatest Newspaper," used its art to advertise itself as the "Capital's Greatest Newspaper." Readers were encouraged to frame the *Washington Post's* art reproductions: "Pictures you'll frame and name."[53] The *Los*

Angeles Times published color rotogravures of California missions and other regional art in the late 1930s.[54]

Mass reproductions of art became individual museums without walls but built communities through a shared culture, namely American artists shaping new aesthetics. The art that went unseen and unheard due to censorship, or simply different values, was also part of the ethos of building a culture for the plurality of Chicagoans. The people who were framing mass produced art printed by the *Chicago Tribune* were members of the working classes, many of whom were émigrés, seeking inspiration in the culture of a new homeland, and trying to better themselves.

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CHAPTER VII: FOR ALL CONSUMERS—THE *CHICAGO TRIBUNE'S* ADVERTISING COLOR

As the U.S. economic structure destabilized, and unemployment and labor riots arose over the subsistence wages paid by the Work Progress Administration's trade programs, the potential for color newspaper ad sales appeared unlikely. Black-and-white images had been a newspaper industry mainstay.

The competition for newspaper color advertising was not with other dailies, but with magazines that could offer businesses a national marketplace for consumers with money to spend. In 1930, the color advertising revenue for the *Saturday Evening Post* was $29 million. That same year, the combined color advertising revenue of the 35 magazines that published color ads, including the *Saturday Evening Post,* was $84 million.[1] Magazines had a 20-year legacy of successful color advertising. Butterick publications printed the first color advertisement in an American magazine in 1904, and it led to an increase in its dress pattern sales.[2]

Despite vast poverty, a U.S. Department of Labor consumer survey conducted between 1934 and 1936 found that 60 percent of American families had surplus cash after meeting their necessities. The average family income was $1,524 in 1932.[3] Newspapers could potentially fill a void in advertising markets, and reach across cultures and economic strata. But most newspapers were resistant.

The magazine publishing industry technically supported and cheered for color advertising. After World War I, *Printers' Ink Monthly,* a leading trade journal

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of the publishing industry, routinely reported on the psychology of color advertising, benefits of color, press techniques, designs, and profits. The headlines of such articles read: "Color Strategy in Advertising;" "The New Spirit in Color Advertising;" and "Color Sells Color."[4] Propaganda techniques developed by President Woodrow Wilson's Committee on Public Information advanced public opinion at home. Leading academic researchers shaped methods to sell Liberty Bonds to fund the war effort, and the successful scientific model replaced spurious sales techniques.[5] Persuasion replaced yellow journalism's base tactics of fraudulent advertising.

For example, a blind survey of 5,172 college students conducted by John Scott & Co. of Seattle, Washington, for Jantzen Knitting Mills included a key question that enabled them to foreshadow future sales: What would make you buy a bathing suit? The study found that 58 percent of the college students named the Jantzen brand, and 48 percent said named brands were important to their buying decisions (See Figure 16).[6]

As a result, the Jantzen name received prominent attention in the color rotogravure advertisement published by the *Chicago Tribune* in 1931. The design was an Americanized treatment of the Art Deco style set by European designers at the Paris International Exposition of Modern Decorative and Industrial Arts in 1925.[7] The streamlined style removed extraneous details to heighten shapes and colors. The curvilinear, sensual shape of the woman in a bathing suit merely offered a hint of the European debauchery associated with the Art Deco style. Instead, the Americanized form, appropriate for newspapers, associated Jantzen

with modern aesthetics. The art depicted the figure outside of water, because a large proportion of those surveyed indicated that they sunbathed and did not know how to swim yet. While current survey research in advertising is routinely undertaken today, in 1929, Jantzen Knitting Mills and *Printers' Ink Monthly* modeled industry standards with a journal article on its methods.[8]

While photography was rarely used in magazine advertising prior to 1920, it dominated campaigns by the next decade. Art historian Patricia Johnston found that national advertising firm J. Walter Thompson Company began using photographs in 60 percent of its designs for mainstream magazines by 1930.[9] Approximately three weeks were needed for the preparation of color photographs for publishing. Magazines could work far in advance, since their articles did not involve breaking news. Coated paper suited half-tone printing and made magazines conducive to photography. The *Chicago Tribune's* color rotogravure could publish photographic art, but it also required several weeks to prepare.

Yardley Cosmetics steadily increased its sales during the Great Depression using color rotogravure advertising in the *Chicago Tribune.* Sales rose by 201% in 1930; 199% in 1931; 185% in 1932; and 272% in 1934 (See Figure 17). However, national campaigns were difficult to distribute in newspapers. Following a series of *Chicago Tribune* color rotogravures in 1927, the Shaeffer Pen Company, with great difficulty, pieced together a campaign for 33 city newspapers that had varied mechanical differences.[10]

In 1931, *Editor & Publisher* conducted research to assess department store attitudes toward newspaper color advertisements. A retailer who favored

full-color newspaper advertising for special sales events offered a commonly spoken hesitation regarding printing equipment:

> I think that the mechanical devices and procedures employed in producing color advertisements deserve considerable improvement and it will be necessary for newspapers to brush up on this phase of the situation. This is absolutely vital so that stores can secure more dependable support in the handling of their color advertising.[11]

A retailer cited newspapers for being "backward" and not modernizing typography. Was modern design only to be associated with elite and fashionable magazines?[12] The purpose of the International Paris Exposition was to bring fine design into the mass production arena and democratize artistic elements in industry and decorating. However, Johnston observed that the rhetoric was egalitarian, while modern design itself was limited to high-end products in the 1930s.[13] Social stratification in the visual discourse separated elite magazines and egalitarian newspapers by outdated presses and the agency of advertising.

The *Chicago Tribune* possibly had become too much of a maverick and far too innovative for its own survival. The American Photo-Engravers' Association erroneously predicted in 1923 that color advertising in newspapers would "be in vogue in a year or two."[14] But as late as 1936, only 11 out of more than 1,700 U.S. dailies were equipped to sell advertisements with color rotogravure.[15] Consequently, in the early 1930s, the *Chicago Tribune* had a three-pronged integrated model for advertising growth: 1) build morale of all employees with internal and external publicity; 2) innovate and invent more color technologies; 3) encourage national newspaper standards.

Morale

The fighting spirit that uplifted the *Chicago Tribune* during the 1920 and 1921 economic depression was used once again to survive the hardships of the 1930s. Color printing increased the number of jobs at the *Chicago Tribune,* and color advertising increased color printing. Internal publicity in the employee newsletter, *The Trib,* and in the *Chicago Tribune* promoted the employees and the product. For every new page of color advertising sold, one more press machine was required, and one more employee was needed to run it, the *Chicago Tribune* reported. Each page of color required an artist, engraver, and other specialists at the pre-press stages for pictorial printing.[16]

The *Chicago Tribune's* 2,288 employees in 1934 could read about their colleagues, or themselves, in the daily newspaper. Their friends and neighbors could read about the *Chicago Tribune's* modernism: "Color! A Drama of Printing New Sunday Tribune. Ingenuity Finds Way Out of Depression."[17]

At a time when economic recovery appeared dismal, the *Chicago Tribune* trumpeted its innovations, not only to inform the public, but to remind themselves they would survive. In *The Trib,* the employee newsletter, a feature story on the expansion of its color photographic studios noted the jobs:

> The story of color goes on and on and on. More men are employed in every *Tribune* department to handle the extra work involved in the color process. New equipment is installed. Special paper and ink are developed. The improvement of machinery now in use is followed by the invention of new devices—all to make a better, more colorful *Tribune.*[18]

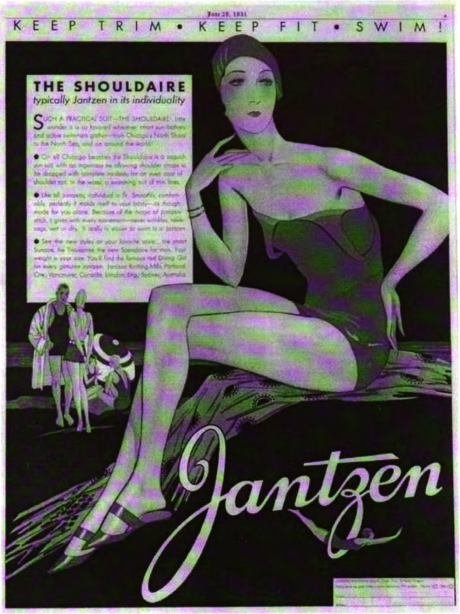

Figure 16. A color rotogravure swimsuit advertisement in the *Chicago Tribune*, June 28, 1931 (Michigan State University, reprinted with permission of *Chicago Tribune*).

Figure 17. An advertisement published in the *Chicago Tribune* early in the 1930s for Yardley cosmetics increased sales in the Great Depression (Michigan State University, reprinted with permission of *Chicago Tribune*).

Relying on his World War I experiences to lead the *Chicago Tribune* through the Great Depression, the publisher presented his two-part plan to the advertising force. The first part was the product worth fighting for, and the second, the self-confidence they could succeed. The *Chicago Tribune's* rate for a one-time showing of a full-page advertisement printed by color rotogravure section was set at $5,500. If a company contracted for 52 repeated showings of

the same ad, the total cost amounted to $225,000, even with a discount of $700 per ad for the multiple placement.[19]

Robert R. McCormick, however, envisioned color advertising in newspapers as the means for regenerating all businesses, including newspapers. At an annual sales banquet in 1931, McCormick told his advertising staffs they could be counted out of society or be counted in, and fight to save themselves and businesses.

> It [*Chicago Tribune*] was never as vital as it is today. Its literary quality was never as high. It was never so prolific of ideas. One idea, alone, color in the daily paper has opened a whole new world to our selves and to our advertisers. Your mission is to go out and give to doubtful and sometimes weak kneed businessmen the light of hope and the assurance of success. Then years have passed since, during a depression, our slogan "1921 Will Reward Fighters" was invented. It is more true today than it was then.[20]

The *Chicago Tribune's* color rotogravure sales peaked in 1929 but plunged in 1934; however, the newspaper added two new advertising streams for color. A lively, low-cost printing method gave businesses a window in the color comics section. Beginning in 1929, the color comic section became an active area for advertising family breakfast foods, and sales increased eightfold by 1935.[21]

Color Letterpress

A decade after the invention of color rotogravure, the *Chicago Tribune* introduced full color in the daily news section (See Figure 18). The high-speed method of etching brought color editorial cartoons to the front page and advertising inside the news section. *The Inland Printer* described the event as the pinnacle of "artistic perfection" with newsprint. The *Chicago Tribune's* full-page

advertising gave the appearance of a magazine ad, yet it was printed on the least expensive form of paper.

Otto R. Wolf, often called a "printing press genius," invented the color letterpress and a series of innovations at the *Chicago Tribune* by conducting experiments with his co-workers in multiple areas that were involved with the mass production of color pictures. Wolf's invention teams brought the *Chicago Tribune* 14 patents for printing improvements or new processes. The creation of the color letterpress was significant for four reasons: 1) Overnight news deadlines were still met, even while color art was added to the black text; 2) Color editorial cartoons could be featured on the front page, and these were routinely used to build community spirit and raise funds for charities and war bonds. The color cartoons became the window of the newspaper's conservative editorial tone, which provoked public discourse; 3) Letterpress applied less ink to pictures than color rotogravure, enabling a less expensive advertising product, but one that met daily retail needs; 4) Time was saved in the etching process, because steel cylinders that held the etchings no longer had to be ground and polished between pictures (See Appendix A, US1784037).[22]

Wolf teamed with John Park, the production manager; Edgar Mahar, chief of the pressroom; Louis Racicot, head of engraving and the first engraver hired at the *Chicago Tribune* in 1887; Leo Loewenberg, composing foreman; and Robert Longmore, stereotyping foreman (See Appendix A, US1784037).[23]

> business man waits for some one else to discover it, we may have a long time to wait. Meanwhile, each manufacturer and business man can help if not by developing new products then by refining and improving old ones. The *Chicago Tribune* regards its new color process as its contribution to the recovery.[26]

Oddly, the first color cartoon published on the front page of the *Chicago Tribune* on May 5, 1932, with the new letterpress excoriated the patriotism of U.S. Senator Huey Long, a Democrat from Louisiana. The cartoon depicted Long carrying a red flag to identify him as a Communist.[27] A series of irritating political actions by Long culminated in his passing a law to tax newspaper advertising. By 1936, the U.S. Supreme Court found the advertising tax unconstitutional, Grosjean v American Press Co., 1936.[28]

Born in Leipsig, Germany, in 1885, Wolf worked as a machine designer and as an apprentice draftsman after his education at Leipsig University. He emigrated to the United States after the turn of the century. In his early twenties, Wolf took a position at the Robert Hoe Co. as a draftsman and engineer. His dual understanding of machines and drawing later gave him insights into the mass production of art. He worked for Seymour Press Co. in Boston, Goss Press Co. of Chicago, and American Can Co. before joining the *Chicago Tribune* in 1920, where he made his home inventing for 37 years.[29]

One of Wolf's most popular inventions was his 1941 color comic book, printed on newsprint and inserted into the *Chicago Tribune's* complex Sunday paper.

Industry Change

The *Chicago Tribune* conducted a survey of 1, 942 dailies in 1931 and found that only 14 percent of dailies printed in two-color—one color with black text. Of the 901 publishers who responded, most began using color after 1926, and the majority began after 1930. The newspapers that used color printing were: in the Midwest and West: 49 in Midwest: 41 in West, 26 in East; 9 in South. Forty-six dailies used some form of color in advertising.[30]

Following the survey findings, the *Chicago Tribune* convened 100 of the nation's largest publishers to a two-day conference on color printing. The *Minneapolis Journal* reported on the need for standardization of inks. Den Dalgin of *The New York Times* pointed out difficulties with building national advertising campaigns:

> If an advertising agency has three points in which they would like to advertise—let us say, Chicago, New York and Detroit, and they have one piece of copy, Chicago wants thirty days to prepare the plate, New York twenty days, and I believe Detroit twenty days. It takes quite a while for the copy to travel from one point to another. By the time it reaches the third point, the advertising is stale.[31]

Advertising was one central element of the proceedings on color printing in newspapers. Collectively, publishers began considering pictorial color graphics in relation to all sections of their newspapers. And the *Chicago Tribune* had almost achieved its goal of making color as common in newspapers as it is in everyday life. The *Chicago Tribune's* color photography was its next horizon.

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CHAPTER VIII: THE *CHICAGO TRIBUNE'S* INVENTION OF COLOR LETTERPRESS—CHANGING AESTHETICS

Given the popularity of the *Chicago Tribune's* Sunday newspaper with art reproductions and photographs, it also added color to its front-page political cartoons on weekdays and increased circulation in the Great Depression.[1] Made possible with Otto R. Wolf's invention of the multicolor letterpress in 1932, color cartoons caused a paradigm shift that streamlined news graphics (See Appendix A).

The first front-page color cartoon was designed by editorial artist Carey C. Orr on May 5, 1932, and he was central to changing the genre to evoke quick reactions in readers.[2] With Orr's sleek new style based on the symbolic language of colors and shapes (See Figure 23), he initiated the end of a cartoon method influenced by centuries of woodcuts, abundant in details, bearing thought, attention and time to discern their meanings (See Figure 24). In his 46-year tenure at the *Chicago Tribune* beginning in 1917, Orr served as a chief editorial cartoonist, received a Pulitzer Prize in 1961, and mentored dozens of artists in news and entertainment cartooning.[3]

Woodcuts Influenced Early Photoengraving—A Passing News Genre

Up until the 1890s when photomechanical engraving allowed illustrations to be mass-produced, pictorial journalism relied on the art of woodcuts for recreating pictures in periodicals. Ever since the first woodcut was published in an English broadside in the sixteenth century,[4] publishers have employed craftsman to use this ancient Chinese art form. The lapse in time from the first woodcut in China in the ninth century to its mechanical employment in printing in

England seven hundred years later was due primarily to inadequate paper making.[5]

A comparatively inexpensive art, the woodcut evolved into wood-engraving—the most popular method used by newspapers and periodicals between the 1830s and 1880s. (It was called "engraving," but it was the relief method of etching).[6] Wood-engraving used by the popular press required only a block of hard wood, usually from the boxwood tree, and a graver—a steel rod with an oblique, sharp edge. Working across the grain, the graver would shape a basic image and create details with narrowly cut raised lines in the wood block. The printer coated the relief image with ink and pressed paper against it.

An artist created perspective and contrast by employing a range of techniques that varied the quantity, length and direction of lines. One technique known as "crosshatching," for example, is used for shading an area. An artist drew two sets of diagonal lines: one set of diagonal lines slanted one direction; Another set of diagonals were drawn on top of the first set, slanting the opposite direction. This resulted in a dense set of crisscrosses in an area and produced textured qualities, and a deepening of tones.[7]

Photoengraving in the latter part of the nineteenth-century used acid chemicals and gelatine to replace the graver tool, and zinc and copper plates to replace wood blocks. The chemical images on metal plates still stood in relief. Newspapers routinely duplicated their metal plates in order to run several presses at the same time. A paper mache mixture was pressed down into the crevices between the raised areas of the images to form a mold, known as a

"mat" or "matrice," which was curved in the shape of a rotating cylinder. The mat was baked, and then metal castings, known as "stereotypes," were made from the curved molds to duplicate the original plates.[8]

Relevant to this study and the color letterpress, stereotype plates and mats did not produce high-quality halftones. Low- and mid-quality halftones were abundant in newspapers in the first three decades of the twentieth century and were pervasive in the *Chicago Tribune,* but their inadequate effects were not employed for the central focal point of the newspaper. An illustrated line drawing produced a faster, more effective overnight picture on the front page than unrefined photographs. The line drawings could roll off the presses thirty-minutes after being created, while a high-resolution halftone required a metal stereotype plate and lengthier press preparations.[9]

The average daily *Chicago Tribune* in the 1920s used fifty small editorial halftones on its inside pages and approximately 25 editorial illustrations dominated its section covers and features. The Sunday paper contained approximately 150 halftones and 50 illustrations.[10] Consequently, the *Chicago Tribune's* 1932 color letterpress invention needed to integrate the complex elements of halftones, headlines and stories, and not slow down production. A simpler method that applied tone with blocks of color inside line drawings was called for, and shading through the crosshatching technique became obsolete.

To place color over an area already deepened with crosshatched lines would have been redundant, and the two techniques—color blocks for a modern aesthetic and dense black ink lines from a dated technique—would have yielded

competing effects. Additionally, since black ink does not reflect light, the greater the density of black ink in an area combined with colors, also results in reduced color. Color is light. And ink colors combined with black reduce the amount of reflected light waves that are electromagnetic energy. The greater the color, the greater its energizing effect on readers.[11] As a result Orr interpreted the invention's intended aesthetic to: 1) reflect colors that convey the emotional and ideological essence of the editorial message; 2) reduce the competing effects of two discrete drawing techniques—wood-cuts versus modern color; 3) minimize details to facilitate understanding; 4) differentiate meanings and increase understanding with multiple colors.

In other aspects of the art world, aesthetics were modernizing, however contentiously. This was the age of Pablo Picasso, whose simplicity of line drove modern thought. Cartoons were evolving, along with the social forces affecting the rest of the nation. Photography critic Henry Holmes Smith observed that at the turn of the century art teachers in America were found "napping," for they missed the individual expressiveness of the modernist movement.

> During the same period that Picasso, Braque, and others became the laughing stock of America—sophisticated, prewar America with its Turkey Trot and its Bunny Hug and Irving Berlin and George M. Cohan—two tremendous folk media sprang into public favor: the comics and the movies.[12]

Drawing Them Into Democracy—Opposites Attract

Orr drew readers into the democratic discourse of public affairs by polarizing the issues. If readers disagreed with his conservative political views, he provoked them; if they agreed with him, they relished in his humor. The use of

moderate subtle caricatures would have imposed on readers the necessity to pause and study pictures. Thus, he employed a figurative "vehicle" to transport his visual ideas. Animals and family scenes were most often the vehicles of choice, due to their familiarity to most readers.

A complex idea, then, was translated into a simple action, or antic, of an animal, family matter or other familiar situation. For example, Orr attacked lavish spending practices during President Harry Truman's Administration by dressing a colt in a mink coat, interpreting the clothes horse as the Democratic Party's symbolic equivalent of a donkey. These figurative vehicles employed the metaphorical art of the synecdoche, which allowed a part to stand for a whole situation or condition.[13] A fierce black bear epitomized the Soviet Union's dangerous level of aggression; a sitting lion characterized England's resolute yet passive grandeur.

The impact of simple lines and colors brought a stunning break with the past to capture the essence of an editorial view of a turbulent, complicated environment, altering the domestic and international fronts. Orr reduced the Soviet Union's hunger for more territory to a synecdoche of an animal in the wild feeding on prey. In his Pulitzer Prize-winning cartoon in 1960, *The Kindly Tiger*, he interpreted the expansion of communism with its promises of good will in Africa, as a ferocious, salivating animal poised on its haunches.[14]

He viewed editorial cartooning, as a news editorial article that was reduced to a one-sentence caption.[15] While Orr could draw a cartoon in fifteen or thirty minutes, he labored over the captions, said his youngest grandson, Carey

Orr Cook, retrospectively considering the artist's creative process. An avid reader, Orr brought perspective into his cartoons by routinely studying etymological dictionaries to discover the roots and essences of word meanings, and he explored political and Biblical histories for analogous conditions and figures.

> He would reflect on historical events — the French Revolution and the ...history of Rome in ten volumes, and when he was finished, he would go back and read the first one [volume]. The ideas would show up artistically as the gates of the Roman Coliseum, or as Pericles, or as a reference to *Corinthians.*[16]

Shaw McCutcheon, who served as an editorial artist for the Spokesman-Review in Spokane, Washington, after Orr mentored and taught him cartooning in the late 1940s, observed his use of large figures in the center of a composition, and that "his war cartoons were very powerful type of cartoons that color could enhance."[17]

> Orr was very good and very fast. He knew how to get an idea and how to plan it out. It's a one line editorial. No if's and an's. The government's action was good. The government's action was bad. The more you knew the people you were drawing, the more helpful it was to do the cartoon about them.[18]

The sleek oppositional aesthetic melded with the ethos of the strife-ridden Jazz Age and the powerful dynamics of the Machine Age.

The Discomfort of a New Paradigm

Shaw McCutcheon was the son of John T. McCutcheon, the chief editorial cartoonist at the *Chicago Tribune,* whose leadership of the artistic team preceded Orr's.[19] The elder McCutcheon won a Pulitzer Prize in 1931 for his black-and-white cartoon, *A Wise Economist Asks a Question.* His cartoon version of a

Great Depression economist was a squirrel, whose sagacity was implied through its instinctive conduct of hoarding a bounty of nuts for the winter months. The wise squirrel conversed with a down-and-out man seated on a park bench, whose savings did not survive the 1929 Stock Market crash.

John T. McCutcheon was born in 1870 and began cartooning for the *Chicago Tribune* in 1903, after working at the *Chicago-Record*.[20] His drawings, *Injun Summer* and *The Colors* were among the most popular cartoons in the first half of the twentieth-century. Orr, who was twenty years younger, was hired at the *Chicago Tribune* on the brink of World War I, in 1917, to increase the editorial cartooning staff, and he rotated the daily responsibility for creating the front-page picture with McCutcheon.[21]

When Shaw McCutcheon returned to Chicago in the late 1940s after military service in World War II, he asked Orr to give him drawing lessons, as the elder McCutcheon was retired and ill. Orr completed his daily cartoon by three-o'clock in the afternoon, and the hopeful artist dropped by once a week for a drawing lesson. A former student at Harvard University and Massachusetts Institute of Technology, the young McCutcheon felt impelled toward art with the individual expressiveness that arose in wartime and romance. He was poised between the paradigms of two eminent cartoonists: His father's influential talent with the aesthetic of wood-engraving and woodcuts, and his mentor, Orr, a pioneer in the reductive language of modern color. Shaw McCutcheon contrasted his father's complexity to Orr's spare modern treatment:[22]

> When he (John T. McCutcheon) used colors, and he was not a color man himself, it was pretty much flat colors. Santa Claus had a red jacket, and it

> was just red. The sky was blue, so it was blue. Carey Orr was more color conscious, so he used variations of a color. Rarely a flat color and that would go very well with his cartoons. But the cartoons, such as my fathers, which had 50 or 100 little characters in them, colors aren't going to add anything to that.[23]

The elder McCutcheon believed that color distracted from the newspaper's editorial concepts interpreted with cartooning, his son said. Shaw McCutcheon observed:

> I think my father didn't do the color work on that cartoon [The Colors] or on other's, too. It was done by the engraving department with, maybe, a notation of what colors to use. Whereas, Carey Orr did the color work himself in his office. He sent the cartoon down, and the engraving department made a print of it and sent it back up to him on a glossy piece of paper. And he—with watercolors—would put in the color with the great color gradations, and send it back down to the engraving department.[24]

Orr's affinity for modern aesthetics was commensurate with McCormick's vision that "color must be as commonplace in the newspaper as elsewhere in life."[25] Orr, who was reared on a farm in Ohio, and spent his teen years working at his father's lumber mill in Washington State, also embodied a value important to McCormick. "My grandfather was a Western man of self-sufficiency, and I think he tried to embrace the colonel's [McCormick] attitude in that regard," his grandson, Kimberly Orr Cook, said.[26]

The proliferation of the cartoons with oppositional contents spurred friends and foes, and the *Chicago Tribune* often drove the news agenda. *Time* magazine noted the *Chicago Tribune's* ranting opposition to President Roosevelt's New Deal economic program and the Works Progress Administration. In a *Time* news story, October 3, 1938, *Grasshopper Bites Publisher*, the *Chicago Tribune's* criticism of the WPA garnered national attention. Specifically, WPA Assistant

Administrator Howard O. Hunter offered a heated response to McCormick and Orr's editorial attacks:

> Mr. Hunter's real target was rich, Roosevelt-hating Publisher Robert Rutherford McCormick, whom he brashly labeled "vicious" and "irrational." Other item: One Tribune article told of "Johnny," a young Italian "who has never known any work but WPA"....While Chicago newspapermen circulated the Hunter rebuttal among their friends, famed Tribune Cartoonist Carey Orr continued to picture WPA as an improvident little grasshopper, dressed in a high hat and picket sign. Aching to prove he is no grasshopper, Georgia-born, 430-year-old Howard Hunter, who has spent one-third of all Federal money allotted to WPA in the last three years, made a wisecrack worthy of Harry Hopkins by disclosing he attributes his perfect complexion to the Tribune. "My stomach functions perfectly and I never take salts," said he. "I just read the *Tribune* every morning."[27]

The *Chicago Tribune* generally published letters to the editor with delivering the pros and cons of the New Deal. One sent Nov. 15, 1934, defended Orr:

> I noticed in the Nov. 10 issue you allowed several of the New Dealers to run off at the mouth and give Carey Orr a good tongue lashing. In view of this evidence that Orr is able to get under the skin of these dumb clucks, I think he deserves a raise in salary.[28]

Cartoons At-A-Glance Cartoons: *Trouble With The Weather*

Orr could ably boost morale for the war effort for readers, skimming their morning papers and quickly reviewing the front-page cartoon. On January 9, 1942, he set an upbeat tone and agenda for the readers with his depiction of a turn in events for the Allies (See Figures 23 and 24). The central placement of the cartoon under the headlines tells readers the high priority of the editorial message and the artist. A reader is more likely to look at the cartoon before reading the headline, depending on the literacy level or interest, but at a glance,

both can be observed. The cartoon attracts viewers' by its colors and the actions of the figure, and the content can be grasped with low literacy abilities.

A caricature of Old Man Winter is formed out of snow to represent the Allied forces with moral authority and righteous virtues. A soldier in a green military uniform and a red insignia represents Germany's expansion of Nazi evils and totalitarianism. The cartoon's caption is placed like a third headline on the front page, and it runs horizontally across the top of the picture's rectangular window. The cartoon spans four news columns. Set in capital letters the caption dealt with the Allies victories in Russia, having thwarted Germany's march to Moscow: "GOING TO HAVE A LOT OF TROUBLE WITH THE WEATHER FROM NOW ON."[29]

The main and secondary headlines focus on different theaters of the war, the victorious assault on the Japanese fleet at Wake Island in the northern Pacific Ocean: "Full Diary of Wake Heroes!" and the secondary headline: "Navy Reveals story of Defenders: Jap Losses: 7 Warships." The latter subhead minimize the enemy with a pejorative treatment of the Japanese.

The cartoon sits within the context of other war stories providing details of the victories: *Day By Day Epic of 'Last Stand' on Pacific Isles* and *U.S. Submarine Sinks 4 More of Foe's Craft* are positive but introduce the possibility that the United States could be invaded. A news roundup of war briefs is on the immediate left, and the story's lead opens with more successes on Wake Island. Only the second to the last paragraph discusses the victory at Sevastopol in the Soviet Union—the topic of the drawing. Articles on Sevastopol require jumping to

the inside pages. The only negative news has been buried at the bottom of the news roundup. The escape of the Axis powers' in Libya were due to the rains and "howling sandstorms" that set back the British.

The story of the far left, "House Divests La Guardia of Defense Power," deals with a U.S. Congressional struggle between the civilian and military sector for control of defense funds. Underneath the drawing are two domestic stories: one offers melodramatic news about a teen-age divorcee who commits suicide, while her two canaries sing. Another, reports on suggested delays in milk delivery to save money on labor and fuel.

In short, the intellectual and emotional content surrounding the cartoon support the thrill and strength of a turnaround for the Allies at war, and negative news requires a closer look amid the buoyant headlines.

Figure 21. *Chicago Tribune*, January 9, 1942. An editorial cartoon created by Carey C. Orr and printed on a color letterpress invented by Otto R. Wolf, and his colleagues at the *Chicago Tribune*.

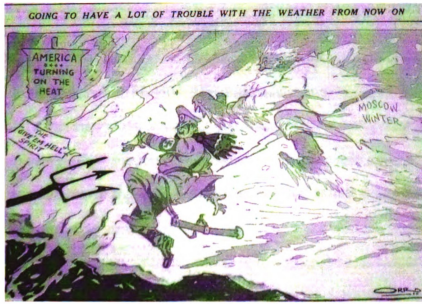

Figure 22. *Chicago Tribune*, January 9, 1942. An enlargement of the editorial cartoon in the above picture, created by Carey C. Orr to bolster morale for the Allies as they pushed back Germany's march to Moscow during World War II.

Figure 23. *Chicago Tribune*, December 23, 1925. An editorial cartoon created by Carey C. Orr, in a style influenced by woodcuts and wood-engraving. The picture depicts the artist's family and house in Wilmette, Illinois, at Christmas.[30]

Inside the Cartoon Window

The topic of the cartoon was the Allied victory against Germany's drive across Europe straight into Moscow (See Figure 24). At Sevastopol, the Allies and the brutal Russian winter beat back Germany. Without being literate, a viewer can easily see a green military uniform on a soldier with a red Nazi insignia, and see him falling helplessly toward the fires of hell, with a pitchfork facing him. A red scarf around the Nazi's neck directs the viewer's eyes to the central area of the cartoon. Old Man Winter is not caricatured as feeble but as representing the Allies indomitable force, and the natural authority of winter: The text "Moscow winter" has been written on his white coat.[31]

The emotional tenor is inscribed on the sign tied to a pitch fork and reads "The Give 'Em Hell Spirit." Another sign, driven into the snow on a stake, "America Turning on the Heat," reclaims the invaded territory. Old Man Winter bearded in snow kicks the Nazi into Hell. The Nazi's green military uniform and his red neck scarf are the predominant colors seen against white snow.

Only two large figures are in this cartoon, set against a wash of an icy white oceanic background. The snow at the bottom of the drawing rest on pink and red flames of Hell, and pink streams in the snows in the middle suggest the blood of thousands of Allies fallen in the campaign against Germany. The blue boots worn by Old Man Winter and the blue sky offer hope and suggest martial strength, compared to the pink, red, and yellow inferno facing the weakened Nazi. Old Man Winter's icicle runs on a diagonal line from the upper right corner to his left boot, and the Nazi falls toward the left corner of the page. The cartoon

has two separate areas, that are not overtly noticeable, but nevertheless, the diagonal separates the white snows of moral purity from evil green Nazi and the fires of Hell. The cartoon celebrates the thrill of hard-won victories.

At a glance Orr's watercolor draws an editorial message about America's will to win after the crushing attack at Pearl Harbor in 1941. A black-and-white cartoon could not have suggested blood and fire without the spare brush strokes of pink and red, or readily differentiate a Nazi soldier from an American soldier without scrutiny. The colors effortlessly frame the forces of good and evil, and right and might against inhumanity and weakness. Thus, colors are a tool to symbolically design an editorial on America's will to win and the realization of victory out of that spirit. The colors exude an energy that wakes up readers to the morning's editorial view of a better world.[32]

Carey C. Orr's Rise and Influences

Two months before the United States entered World War I, the *Chicago Tribune* anticipated its needs for increased graphics on foreign affairs and hired Orr, a young fire-brand from the *Nashville Tennessean*. Newly graduated from the Chicago Academy of Fine Arts, Orr had saved up his earnings from playing semi-professional baseball to attend art school. He had already published cartoons as a free-lance artist for national magazines, and an intern for *Chicago Record-Herald*.

U.S. Senator Luke Lea owned the *Nashville Tennessean,* and he used the paper to attack his leading opponent and news competitor, Major E. B. Stahlman.[33] Orr drew 91 cartoons in a row against Stahlman in 1912, and the

victimized publisher whose paper had the larger circulation at the time, launched a bitter character attack against the artist. Readers ran to buy the *Nashville Tennessean* to see Orr's cartoons themselves, and its circulation doubled. Front-page editorial cartoons struck emotional chords and meant big business.

McCormick, who believed that cartoons "presented their political messages much more quickly than did editorials," hired Orr to draw readers into critical public affairs issues.[34] The *Chicago Tribune's* editorial cartoons were central components of each news section's cover page. Orr's post followed on the heels of the second-most noted cartoon crusade against political corruption in the United States—the purchased election of U.S. Senator William Lorrimer, a Chicago Republican Party boss.

The *Chicago Tribune's* chief editorial cartoonist, who took on Lorrimer, was McCutcheon, who was broadly popular for his gentler human-interest drawings. He speared Lorimer for several years before the U.S. Senate finally removed him from office. While other periodicals gave considerable attention to the corruption, such as *Cosmopolitan's* noted literary series, "Treason in the Senate," the *Chicago Tribune's* work stood alongside Thomas Nast's cartoons on Tammany Hall in the nineteenth-century, for they successfully pictured the essence of the corruption.[35] With that kind of success, McCormick redoubled his pictorial thrust.

Orr attacked Chicago's organized crime syndicate, and its best-known leader, Al Capone in the late 1920s and early1930s. His cartoons placed his family and McCormick's at risk. Orr's youngest daughter, Mrs. Henry Carson

Jackson, recalled the dangers the cartoons brought to her family and to the publisher, although she paid little attention to it as a child:

> I can remember how impressed I was when the Colonel would be driven up to the *Tribune,* because he had a bullet-proof car. I can remember when I was in first grade, Daddy did some cartoons about the gangs there. They wrote to Daddy and told him, if he didn't stop they were going to get his children. I remember mother one time started taking us to school, and the school was three blocks away. And children teased me, because I was such a baby that Momma had to take me. I told my mother, 'I didn't like that a bit,' because they were teasing me. And she said, 'All right. Just know if anyone comes up in a car, you get as far away as you can. ...But they threatened Daddy. I remember mother taking me for a while [to school].[36]

The criminal gang leader, Alphonse Capone, was convicted of tax evasion in 1931, and although he fought the ruling, he was sent to jail, prior to the global community's convergence on Chicago to attend the spectacular 1933 World's Fair.[37]

Daily Editorial Board Meetings

McCormick's enthusiasm for Orr's cartooning was unquenched, and he spontaneously delivered the artist his ideas in memos, even though they conversed daily at editorial board meetings. Orr shared the publisher's political sentiments, but not his cartoon ideas. The artist's talent energized McCormick. The atmosphere was fervent with creativity, even if some of the ideas made the artist cringe. Orr's oldest daughter, Mrs. Dorothy Jane Cook, said that the publisher and Orr had a deep respect for each other, and her father's art was never censored or altered prior to publication.

> They had an editorial conference every day, and my father was there and talked about the events of the day, and what was coming up, and no one ever told my father what to do, or suggested it. But every once in a while,

> the colonel would have some [artistic] thought...and my father would say with a twinkle in his eye, that he was trying to draw something [the colonel conceived].[38]

McCormick did, however, derive so much enjoyment from his own spontaneous cartoon ideas, that he frequently offered them to Orr. He noted them in memos, with the figurative analogies. He imagined a prohibition figure as an old-maid aunt on June 25, 1928: and wanted to contrast a competent woman driver compared to incompetent captains and workers on ships in the 1920s:

> Dear Cary: [sic] Has anybody used the character "Aunty" for such organizations as the anti-saloon league—the anti-rodeo league?[39]

Six weeks later, Orr attempted an "Aunty Saloon League" idea and introduced the cartoon character once, and she did not reappear again in 1928. The Aunty Saloon League cartoon showed the aunt receiving a bouquet of roses with exaggeratedly long thorns from President Herbert Hoover. The thorns represented organized crime, implied by their snapshots hung on her living room walls. "Ouch," read the caption.

The concentrated attention on editorial news pictures, became too intense for readers, and content broadened in the 1930s. While McCormick was vacationing in Aiken, South Carolina in the 1930s, he sent Orr a note asking him to create a political cartoon only every other day. That led to color cartooning to increase war bonds, and funds for veterans, the American Red Cross, Chicago Boy Scouts and indigent children and families. The *Chicago Tribune* published thousands of extra copies of his color cartoons to give away to uplift spirits of workers in factories supporting the war. In 1955, the Freedoms Foundation honored Orr for his "contributions to American life."[40]

Influences of Orr's Childhood on Art

Orr's first and most important art lessons came during his childhood, where he strengthened his talent by drawing the animals on his family's farm, and the citizens of nearby Uniopolis, Ohio. Orr's rural background shaped his art, and in turn affected his talent for guiding aspiring cartoonists. The unsettled forests of west central Ohio in the late nineteenth century spilled over with wild life that far outnumbered the hunters, lumberjacks, and farmers. Wild turkeys ran amid the deer and raccoons. The gray squirrels—and some black squirrels jockeyed up the walnut trees. Wild ducks dove for fish in the Scioto and Hog Creek marshes teeming in rattlesnakes.[41]

Carey Cassius Orr was born in rural Ada, Ohio, on January 17, 1890, to a sawmill owner, Cassius Perry Orr, and Martha A. Rinehart. The chief business in Ada was lumbering. The forests lands were plentiful, and residents felled the finest beech, ash, and hickory trees to burn in winter months. At age eighteen, Martha married Cassius in her hometown of Uniopolis, twenty-five miles southwest of Ada, where her parents owned a farm. While Martha survived childbirth in 1890, she died one year later of an illness that caused her to choke. Cassius left his youngest boy, the future artist, to the care of his diseased wife's parents. The local sawmill was no longer thriving, and Cassius P. Orr pushed westward to seek his fortune and a new life.[42] Two-hundred people lived in Uniopolis, and to the precocious boy, the little town delivered a rich source of stories. Looking back on his early influences, Orr noted in a rare autobiographical essay:

> There was a blacksmith in Uniopolis, an amazing fellow. He was able to repair anything; and how he could make the sparks fly. A hotel was there, also a restaurant, two general stores, two churches a large grain elevator, and a barber shop, where on Saturdays farmers met with townspeople to discuss politics, swap lies, and tell jokes...There also was a saloon in the village, well patronized by the owner himself, and women folk always walked past it on the opposite side of the street.[43]

Orr was reared by his grandparents, Arnold and Rebecca Rinehart, on their farm. As soon as he was old enough, he learned to strap a horse to a wagon and handle tools and machinery. The boy felt needed and useful.[44]

The farmhouse was built one-half mile back from the turnpike to avoid the migrant laborers and hoboes that strayed through the countryside, and knocked on doors. One homeless and hungry drifter knocked on the Rinehart farmhouse one evening before dinner and asked to stay. There was a rule against letting strangers in the house, but Orr noted that he and his grandmother, asked him to stay. The stranger carried paper and crayons as he traveled, and he began drawing a portrait of Jesus at the farmhouse. Excited by the man's talent, the family offered him dinner. Orr received his first art lesson at age seven or eight from this important stranger, and the youth went on a drawing "binge" that never left him: "I was enthralled by his ability to draw. I would rather have been that tramp than President Grover Cleveland," Orr wrote, reflecting on the inspiration he received from an indigent and hungry man.[45]

Orr drew the people of Uniopolis and the animals he found. Without formal studies and the resource of artist models, the muscularity and action of wild and domestic animals offered a steady stream of superlative substitutes. His grandson, Kim Cook, said his preference for animals was evident in his

discussions on art and in his cartoons. "Drawing animals was good for an artist," Orr advised.[46]

Carried away by his creativity, Orr's young life was dealt a challenge he kept hidden from public attention. While he was whittling with a long tree limb, his accidentally ran his narrow spear against a tree trunk and it snapped backward and punctured his left eye. The young artist's eye was surgically removed, and Orr wore a glass eye throughout his life. His artistic compositions never favored one side of a page. His grandson, Kimberly Orr Cook, was in awe: "It was amazing what he could do with one eye."[47]

By his teen years, Orr's father in Spokane had established himself, and he asked his boy to move West. Orr played baseball at Spokane High School, and he joined a semi-professional team, where he was a star pitcher. In 1911, he earned $75 a game for the semi-pros. By high school graduation he saved $650, and enrolled in the Chicago Academy of Fine Arts, where he studied cartooning with Frank King, creator of a popular comic strip, *Gasoline Alley*.[48]

When Orr was hired at the *Chicago Tribune* in 1917, he also taught art one night week at the Chicago Academy of Fine Arts. Young Walt Disney, a student at McKinley High School in Chicago, aspired to be an editorial cartoonist, and his model, was Orr. He enrolled in Orr's course.[49] In 1918, when Disney volunteered to work for a Red Cross Ambulance Unit in France in World War I, he bought a Collie pup and named him "Carey," and slipped him into the bandage bag he carried on emergency runs,[50] according to Disney biographer, Bernice Selden. Disney spoke frequently about Orr's influence on his life. In

1961, Orr was featured on the NBC television show, *This Is Your Life.* Disney attended a party afterward for Orr given by the Association of American Editorial Cartoonists. Disney spoke with Shawn McCutcheon about Orr, the elder McCutcheon, and how much he had wanted to be an editorial cartoonist. Disney said in a news interview:

> It was while I was art editor of the McKinley High School paper, *Voice,* that Carey Orr was doing a strip in the *Tribune* called '*The Tiny Tribune.*' I copied him closely and called my strip 'The Tiny Voice.' Later, as a student at the Chicago Academy of Fine Arts, I'd bring my work to the *Tribune* art department for criticism from Orr and the other cartoonists. Their encouragement did the trick. I've been cartooning ever since![51]

Orr's modernism shaped the style of dozens of entertainment artists. He mentored his niece, Martha Orr, and helped her conceive *Apple Mary,* based on the life of an indigent woman during the Great Depression, who sold apples at the *Chicago Tribune. Apple Mary* later evolved into another successful series, *Mary Worth.*[52]

He helped Chester Gould envision his successful comic strip *Dick Tracy,* by encouraging him to work from real-life characters. After work, Orr took Gould to the Chicago police station to observe the people and actions for the famous detective strip. Thereafter, the two artists made frequent visits to the station after work.[53] Joseph M. Patterson, editor of the *New York Daily News* and co-publisher of the *Chicago Tribune* in the 1920s and early 1930s, cultivated *Dick Tracy* and other syndicated comics. For artistic questions, the creators commonly consulted, Orr, the senior cartoonist. "He would have two or three artists around the dining room table. That's where he would be teaching...I would walk through and see them," Mrs. Dorothy Cook said.[54]

Creativity thrived at the *Chicago Tribune* on and off the job. Orr's daughter, Mrs. Dorothy Cook, recalled:

> I remember my parents taking me to Chester Gould's country home out in the suburbs in the 1930s. We passed a graveyard, where he had buried all the people he had killed in his comic strip. There was Gravel Gertie! [55]

The *Chicago Tribune's* employee-inventors kept their imaginations active after the workday ended. Orr had a noted woodworking shop at home, and he used it for civic and national causes, as well as for making toys. He built a gun that shot a lasso instead of bullets, and he used it for hunting a mountain lion in 1929. He captured a small lion and donated her to Chicago's Brookfield Zoo.[56] By World War II, Orr's woodworking shop had received ample attention. A physicist at Northwestern University visited Orr in his workshop in the evenings. Dr. Paul E. Klopsteg and Orr worked for months — through an operative of the U.S. government—on a project for the British government in need of a novel weapon to soundlessly shoot lethal darts.[57]

Orr and his inventive *Chicago Tribune* colleagues placed no physical and intellectual boundaries on their creative talents. Creativity thrived among the employees at the *Chicago Tribune* in the post-World War I era. And Orr, unable to serve in the military, routinely inspired his grandsons with patriotic comments on the greatness of democracy and American citizens, who pulled together to help one another.[58] Orr brimmed with a Midwesterner's hopeful outlook, and persisted, despite the personal and political weathers of fate.

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Chapter IX: Natural Color

To extend to readers visual experiences that were once enjoyed only by the elite in society, the *Chicago Tribune* became the first to publish color pictures on newsprint. The publisher, photographers and inventors went to extraordinary lengths to use the finest color cameras long before color film was invented. Its color photographs made with glass-plate negatives set news records: the first to publish a color photo on newsprint; the first to publish a color photo simultaneously with a news story; the first to combine the luminescence of color rotogravure with a color camera known for its sensitivity to the colors of light.[1]

The *Chicago Tribune* painted with light and ink, combining a process of three-color printing with three-color picture techniques with the Bermpohl-Miethe camera that captured images on glass plates. The *Chicago Tribune* heightened the image quality with talented color photographers, refined newsprint and vividly mixed inks for the 5-cent price of a Sunday paper. This chapter surveys the photography milestones and the context, from 1897 to its work in the 1920s and 1930s. Visual historians Anthony J. Hamber and Louis Sipley have noted that color photography drove color printing, but each process depended on the other's widening popularity. Nevertheless, the *Chicago Tribune* was not an inventor of cameras, but its talented photographers, such as Godfrey Lundberg, improved components (Appendix A). The newspaper's primary contribution was to the art of making and reproducing color pictures. The pictures were critical to breaking news, entertainment and charitable causes — all of which helped democratize color.[2]

The industry publications, *Editor & Publisher* and the *Inland Printer* accorded the *Chicago Tribune* the "pioneering" role for bringing color photography to newsprint. The *Inland Printer*, whose editor was the halftone inventor, Stephen Horgan, went even further to address the *Chicago Tribune's* "technical and artistic perfection."[3] *Time* magazine described the publication's "imposing technical virtuosity."[4]

Twentieth Century

Photographer Edward H. Johnson was seen running from the Chicago federal court house after it was bombed, September 14, 1918. As he fled to develop his pictures a Secret Service officer tripped Johnson, who was mistaken for the criminal. The photographer's glass plates shattered on the courthouse ground. He was nineteen years old, then, and an apprentice photographer for several Chicago newspapers.[5] Twenty years later, after rising through the ranks of the *Chicago Tribune's* color photography staff, Johnson would still be using glass plates, and not film, to take his pictures.

Sheets of color film were not widely available for professionals to process in their own studios until 1946, when Ektachrome by Eastman Kodak, and Ansco Color film by General Aniline and Film Corporation, became widely available. However Eastman Kodak introduced Kodachrome, ten years earlier, for amateurs who mailed the film for processing to the company's headquarters in Rochester, New York.[6]

Amateur photography was a burgeoning business with miniature cameras, faster lenses, and color films. Eastman Kodak Co. introduced black-and-white film for amateurs in 1901, in conjunction with its Brownie camera for $1, and the Kodak camera, from $5 to $75.

In 1910 a monochrome portrait developed on paper could be purchased for $10, which amounted to two-and-a-half day's wages of a typesetter, who earned 50 cents an hour.[7] Photographers in the early twentieth-century made monochrome prints on porcelain, or 24-carat-gold or platinum plates (or other metals) and laboriously add tints by hand to the hair, face and clothes. The costs ranged from $150 to $450 in 1931.[8] But the invention of color film for amateurs thirty years later brought a leap in photographic activity.

Between 1932 and 1938, camera clubs in the United States leaped from 100 to 500. The camera clubs attracted physicians, lawyers, business leaders, and housewives with the leisure and means to devote to an expensive hobby.[9] Miniature camera clubs were forming all over the nation in the mid-1930s. Sipley, observed the noted the phenomenon of Kodachrome in 1936:

> The impact of Kodachrome on the professional field was both sudden and far-reaching. At that time the Leica 35mm camera was enjoying its greatest popularity, and miniature enthusiasts were spending thousands of dollars on lenses, gadgets.[10]

Color images made by amateurs and the introduction of the first full-color movie in 1935, "Becky Sharp," preceded the film inventions manufactured for professionals and added pressure on publishers to meet consumers' interests.[11]

Color film for professional use was invented by Eastman Kodak's subsidiary in Germany in 1938, marketed as "Agfa Color" made by I. G. Farben,

and an affiliate, Ansco, in the United States. The U.S. government interceded with Eastman Kodak's work to escalate the processes of invention with government chemists in order to cultivate color film production for military purposes. By 1946, the U.S. military released the products for civilians.[12]

With the invention of film for professionals the era of three-color glass plate photography ended, and with it a cumbersome but highly sensitive method of capturing natural light. An international resurgence in three-color glass plate photography has been rekindled in the twenty-first century, as artists and visual historians gain appreciation for the relative purity of glass in its response to the purity of light.[13] The additive process of mixing primary colors with glass plates is the same method used for projecting images on computers — both brilliant and captivating achievements.[14]

Unlike film that binds the three color filters together in one strip, glass plate photography relied on the stillness of an image in order to form a sequence of images. If the *Chicago Tribune's* glamorous color photography studio had made a portrait of eight-year-old Shirley Temple in 1935 instead of 1936, she might have needed to hold her breath between the exposures of glass-plate negatives (Figure 24).[15] But in 1936, the *Chicago Tribune's* introduced its newest custom-designed camera made in Berlin, and it could capture a color image with one snap of the shutter, instead of three photos taken in succession.[16] A slight movement of the person being photographed could change the picture composition, and the separate images, taken one at a time for each primary color, could not be combined to create the illusion of one moment in time.

Until 1936, a color photo consisted of a series of three pictures taken in succession with different light filters for red, green and blue.[17] In the end, the filtered light images would be added together to create "natural colors," as they were once called, because they were true to life. What is simply called "color" now, was once so rarely reproduced, it was called "natural color." When the *Chicago Tribune* purchased the first of many custom-built German color cameras in 1921, the length between each color exposure was as long as 10 or 15 seconds, while the photographer changed glass filters and film plates. The subsequent images needed to match.[18]

Glamour and secrecy surrounded the *Chicago Tribune's* innovative color photography studios in the 1930s. The cameras were designed by one of the foremost inventors of color photography, Adolf Miethe, and were built by Wilhelm Bermpohl. After Miethe's death in 1927, Bermpohl improved the registration, which enhanced mass production of images created with his polychromatic cameras that used dry glass plates.[19]

The first to reproduce color pictures on newsprint, beginning in 1897, the *Chicago Tribune* guarded its trade secrets.[20] Although competing for readers' attention with the advent of color movies, the *Chicago Tribune* reversed the condition, and Hollywood depended on the newspaper for its entertainment listings, movie advertisements and features to popularize actors.

The photograph of Temple (Figure 19) gives an impression of a transparent image. This is due, in part, from the bleaching agents added to the paper during manufacturing, which thinned it. The thin paper also shows the

printed ink from the back, but more importantly, the smooth, white paper reflects more light waves directly off its surface, building the rich intensity of color. The unique Bermpohl-Miethe camera, in the hands of a talented photographer, could record true colors without distortion and reveal brilliant red tones (Figure 19).

Figure 24. A feature photo of Shirley Temple was taken by a staff photographer and published in the *Chicago Tribune* Nov. 1, 1936. The Bermpohl-Miethe camera was designed for the *Chicago Tribune* to tight registration.

The *Chicago Tribune's* innovative photographers used cameras invented by Adolf Miethe and custom built by Wilhelm Bermpohl in Berlin in the 1920s and 1930s. Miethe was an evolutionary in color photography, according to visual historian Pamela Roberts, who referred to his being one of the few inventors able

to capture colors representative of life.[21] The *Chicago Tribune* undertook a complex process requiring exacting accuracy. Roberts described the dozens of steps used in the lengthy photographic process that did not include the photoengraving and printing:

> Tricolor printing processes on paper in the 1920s were not for the faint-hearted, being complex, fiddly and largely un-automated. Although there was a flourishing trade in color in portrait studios for those who could afford it, color generally was expensive and the public was largely disinclined to pay for it when a hand-colored monochrome portrait was cheaper. Professional photographers usually stuck to monochrome rather than master a multiple-exposure camera, involving two or three black-and-white negatives shot through different-colored filters which then had to be printed or laminated together to form an assembled color image. The various processes often involved more than 80 precise and exact steps none of which could be omitted, and it could take up to 10 hours to make a single print. Apart from the complex technology of the tricolor processes there was also the expense.[22]

Photochemists Miethe and Arthur Traube in Berlin in 1902, discovered that by using a red-violet dye on glass plates, known as ethyl red (made with isocyanin, quinolin red, ammonia and water)[23] that it was possible to correctly balance all the tonal relationships of the three primary colors. Previous photography was hindered by color distortions. Art historian Anthony Hamber observed that it was not until Miethe that photographers were able to use panchromatic plates to record oil paintings, and it was a milestone in art history.[24]

Experimental color portraits for the *Chicago Tribune* studios were first taken with a camera that made autochrome pictures, which were used as guides for assessing how the final product would look when taken with the Bermpohl-Miethe camera (See Chapter I on autochromes in magazines). The weakness of autochromes were their inabilities to withstand mass production and the reduced

quality on non-glossy papers, according to photography historians.[25] The *Chicago Tribune's* publisher, Robert McCormick, regularly traveled to Europe to assess cameras and other technologies, and see if there was a product the newspaper could improve. He wrote his cousin, co-publisher Joseph Patterson, in 1922:

> I'm leaving tonight for Berlin to see still another three color camera and also some method of etching colors the nature of which has not been discussed to me. The Hamberg etching process apparently will not stereotype [a processes necessary to newspaper production].[26]

With foreign correspondents' and news photographers' offices in Europe, the *Chicago Tribune* established a pictorial syndicate, Pacific & Atlantic Photos. Employees of Pacific & Atlantic Photos, in combination with inventors at the *Chicago Tribune,* launched a series of inventions in 1919 to transmit trans-Atlantic pictures by wireless (Appendix A, Patent US1538916), which were patented in 1925.

Godfrey Lundberg, photographer and inventor, was instrumental to the *Chicago Tribune's* color pictures. Married to the *Chicago Tribune's* art critic, Eleanor Jewett, he frequently traveled to Paris and Berlin to discover new and better methods of color photography after World War I. His 1928 invention moved light filters through the camera more rapidly and enabled faster on-the-scene color news photography (Appendix A, CA278601.)

He used the power and authority of color pictures to engage the public in supporting civic charities. For example, in 1923 the *Chicago Tribune* started the Golden Gloves amateur boxing matches to raise funds for disabled veterans of World War I. To encourage readers to donate to the Dempsey versus Tunney

match in 1929, Lundberg published a color landscape of a wooded park that was going to be founded for veterans' respite care with donations and attendance at the match.[27] Lundberg's supervisor, inventor John Park, described the photographer's activities in a memo to the publisher, who was in need of the photographer's inventive mind in 1925:

> You asked me yesterday what Mr. Lundberg was doing. He has made several photographs of movie stars who have been in Chicago within the last few weeks; he has also made a couple of color photographs for the advertising Department to be used as examples. The above, of course, are only occasional duties. His laboratory time has been taken up with experiments of color prints on paper and revolving mirror ideas in his color camera.[28]

Color Photography Spans Two Centuries

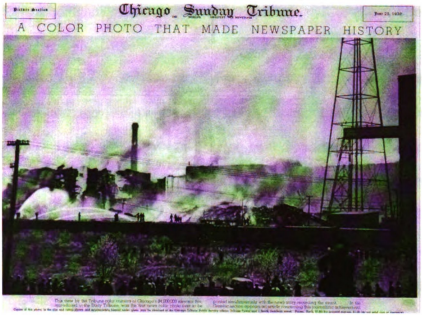
The *Chicago Tribune* featured three-color photography, beginning in the nineteenth-century, using a similar method as the ones used in the 1920s and 1930s. Glass plate color photography created the *Chicago Tribune's* 1897 golden anniversary edition that feature pictures of paintings. The three-color camera used an additive process of primary colors with glass plates for its negatives. This three-color photographic process was subsequently printed with a three-color printing process on a flatbed press.[29] The photographer for the *Chicago Tribune's* 1897 edition was Max Lau, previously assistant to inventor and photographer William Kurtz, who demonstrated his technique for reproducing color pictures in 1893, at the World's Columbian Exposition in Chicago.

Sipley, director of American Museum of Photography in 1951, noted that Horgan and Kurtz attempted to reproduce a color picture in the *New York Herald* in 1894, a newspaper published by William R. Hearst. "Unfortunately presses in

newspaper use at the time were unsuited for color work," he observed in his book, *Half Century of Color.*[30] Photography with glass plates for professional use was carried into the twentieth-century.

Spot News

The *Chicago Tribune's* photographic team spent three years trying to cut down its color processing time to develop pictures overnight for publication the next day. They experimented with photographing wildflowers in the spring 1937, and adjusted the shutter speeds and glass-plate sensitivities for faster exposures. In the course of three years, they were able to reduce the process of photography and photoengraving down to twelve hours, instead of the customary ten days to two months (Figure 25).[31] On May 11, 1939, the *Chicago Tribune* photographed a $4 million grain elevator fire, which took the lives of nine men. The story and photo were carried in the paper the following day, which was the first time a color picture simultaneously was published with its textual news. The photograph of the fire was reproduced the following month (Figure 25). The photographers overcame the fury of the heat and wind, and turned a camera created for still pictures into a force for news.[32]


Chicago Sunday Tribune.

A COLOR PHOTO THAT MADE NEWSPAPER HISTORY

Figure 25. *Chicago Tribune*, June 25, 1939, by a staff photographer. The first color photo that was printed simultaneously with its news story was published May 12, 1939, and republished as seen above. At the base of the picture are on-lookers.

Social Realism for Another Era

The *Chicago Tribune's* Berlin News Chief, Sigrid Schultz, arranged for Bermpohl to design and build the camera,[33] at the same time she was writing front-page news stories on German atrocities and interviewing Nazi generals. Two weeks after the success of the Bermpohl camera in covering the grain-elevator fire, McCormick wrote a memo to the *Chicago Tribune* business manager:

> Schultz is our best correspondent. If she gets less than Darrah, bring her up to him. If she gets the same, send her $100.00.[34]

A picture that was drawn, painted or photographed could have graphically depicted any number of domestic or foreign issues, instead of art reproductions. The grain elevator photograph began its news coverage with color. To dedicate the labor, time and expense to produce a color photograph with troubling content

about the baser instincts of humanity was not a determinative value. There was a deep social need for escape-ism.

A content analysis of the art published on the covers of the picture sections in the *Chicago Tribune* in the first six months of 1929, and the first six months of 1934, found that there was a 37 percent decrease in realistic photos and a 38 percent increase in drawings and paintings. The purposive sample included 51 section covers and 275 pictures (Appendix C). Art that could decorate homes was preferred by readers—not affluent consumers who owned original paintings—but those with aspirations for a better life. A photograph of President Franklin D. Roosevelt was retouched to remove any imperfections, which was the customary treatment for all color photos (See Figure 26). The next generation would add pictures of social realism to the news mix, but they would already have the technological infrastructure to help them achieve their work.

Figure 26. *Chicago Tribune*, June 28, 1936, by *Chicago Tribune-Daily News* Syndicate photographer Harry Warnecke. This photograph of President Franklin D. Roosevelt was retouched to create the impression of an oil painting.

NOTES

1. "Four Colors--On News-Print," The Inland Printer, 101 no 2:42, May 1938; "The Colonel's Century," Time, June 9, 1947, 60; and "McCormick Directs Tribune Under Medill Traditions," Editor & Publisher, March 8, 1947, 11.

2. _____."Tribune Photo Studio, Specializing in Color Work, Moves to Spacious Quarters on 20th Floor," The Trib, August 1935, 4-5.

3. Four Colors—On News-Print, 1938; and "The Colonel's Century," 1947, 42; and "McCormick Directs Tribune Under Medill Traditions," 1947, 72.

4. Ibid.

5. _____. "Edward Johnson, 58, News Camera Man." New York Times, April 9, 1956, 27.

6. Louis Walton Sipley, A Half Century of Color (New York: The Macmillan Company, 1951) 145-150.

7. J.L., "Prices for Photographs," New York Times, February 1, 1910, 8.

8. Harold A. Stewart to Joseph M. Patterson, July 22, 1931. Lake Forest College, Donnelley and Lee Library, Lake Forest, IL, Joseph M. Patterson Papers, Box 58, Folder 6, Series 4, Subseries 1.

9. John Markland, "'Miniature' Camera Gains," New York Times, December 8, 1935, 14.

10. Sipley 1951, 145.

11. Sipley 1951, 145-149.

12. Ibid.

13. Congress, Library of. The Empire That Was Russia: The Prokudin-Gorskii Photographic Record Recreated, December 2003. Library of Congress http://www.loc.gov/exhibits/empire/ [accessed October 10, 2007).

14. Penny McIntire, Visual Design for the Modern Web, Visual Design for the Modern Web. (Berkeley, California: New Riders, 2008), 184.

15. _____. "Tops in Hollywood," Chicago Tribune, November 1, 1936, Picture Section cover.

16. Guy Murchie Jr., "The Tribune Pioneers in Pictures!" Chicago Tribune, April 21, 1940, E3.

17. R.W.G. Hunt, The Reproduction of Colour (New York: A Halsted Press Book, John Wiley & Sons, 1957), 10.

18. Guy Murchie Jr., "The Tribune Pioneers in Pictures!" Chicago Tribune, April 21, 1940, E3.

19. Wilhelm Bermpohl, "Photographic Camera," U.S. Patent Office, U.S. 1,951,896 applied for on March 13, 1930, and issued on March 20, 1934, in the United States, and on April 4, 1929 in Germany.

20. Theodore Regensteiner, My First Seventy-five Years (Chicago: Regensteiner Corporation, 1943), 98.

21. Pamela Roberts, A Century of Colour Photography. (London: Andre Deutsch, Carton Publishing Group, 2007), 59.

22. Roberts, 2007, 72.

23. E.J. Wall, The History of Three-Color Photography. (London: The Focal Press, 1925), 257.

24. Hamber, Anthony. 1996. A Higher Branch of the Art: Photographing the Fine Arts in England, 1839-1880. (Amsterdam, The Netherlands: Gordon and Breach Science Publishers SA), 85.

25. A. M. Kennedy, "Color in the Sunday Newspapers," Proceedings of the Newspaper Color Conference, February 12 and 13, 1936, 13; and Pamela Roberts, A Century of Colour Photography (London: Andre Deutsch, 2007), 32, 20; and Sipley, Half Century of Color, 14.

26. Robert R. McCormick letter to Joseph Patterson, March 30, 1922. Wheaton, IL. Lake Forest College, Donnelley and Lee Library, Series 2, Box 51, Folder 5.

27. Godfrey Lundberg, Picturesque Chicagoland, Chicago Tribune, April 7, 1929, Picture Section cover.

28. John Park Park, John. Letter to Robert R. McCormick, June 26, 1926. Wheaton, IL, Lake Forest College Library, Donnelley and Lee Library, Joseph M. Patterson Papers, MSS Collection, Series 2, Box 51, Folder 7.

29. Regensteiner, 1943, 98.

30. Sipley 1951, 18

31. "Four Colors—On News-Print," 1938; The Colonel's Century, 1947, 42; and McCormick Directs Tribune Under Medill Traditions, 1947, 72.

32. "The First Spot News Color Picture," Chicago Tribune, June 25, 1939, G2.

33. Tribune's New Color Camera Gem of Science, October 25,1936, 23.

34. Robert R. McCormick to Joseph M. Pattterson, May 26, 1939. McCormick Research Center, Wheaton, IL, Series I-62, Box 8, Folder 9.

CHAPTER 10: SUMMARY--DEMOCRACY OF COLORS

Having explored the *Chicago Tribune's* vigorous creation of realistic and expressionistic color images across five decades, beginning in 1897, it is valuable to reconsider the central question. How did the *Chicago Tribune's* inventions affect the culture, and how did the culture affect the *Chicago Tribune?*

To address that question it was first necessary to collect a substantial body of evidence that documented the *Chicago Tribune's* seminal role in the inventions and applications for color in modern newspapers. The first line of evidence for studying the *Chicago Tribune's* innovations derived from direct scrutiny of several thousand newsprint originals and not on microform or other preservation methods. Secondly, the research relied extensively on patent searches and validation by other contemporaries at the time of invention, such as Stephen Horgan, editor of *The Inland Printer,* who invented a one method of photoengraving pictures in the 1880s.[1] This study found 92 patents related to media products issued by governments throughout the world to employees of the *Chicago Tribune* and its subsidiary companies (Appendix A), during the first half of the twentieth-century.

The *Chicago Tribune's* seminal achievements included the following visual milestones:

- The June 10, 1897, edition of the *Chicago Tribune featured the first full color photography and color photoengravings in a newspaper. A leading commercial printing expert in Chicago, Theodore Regensteiner, and his associate, color photographer Max Lau,*

designed the printing processes, which they, and two other outside firms printed. The color photographs recreated scenes from paintings of local and national history. Regensteiner adapted a Miehle Co. letterpress and used a three-color printing and three-color photography process based on the inventions of Philadelphia photoengraver William Kurtz. Three-color referred to mixing three primary colors to create all other colors of nature, without the use of black or brown inks.[2]

- In 1920 *Chicago Tribune* printer John C. Yetter invented the color rotogravure printing press, which brought natural-looking images into newspapers. The routine mass production of natural images began at the *Chicago Tribune* by 1922 (Patent No. US1504409).[3] The color rotogravure was a high-speed engraving method that brought readers reproductions of fine art that they framed to decorate their homes, particularly during the Great Depression, and it enabled advertisers to depict consumer products in realistic color. Color rotogravure sections were published in the *Chicago Tribune's* Sunday newspaper, which gave a broad diversity of readers access to images generally limited to expensive magazines or books, or to people who could afford travel to distant locations and museums.
- In 1924 *Chicago Tribune* Publisher Robert R. McCormick applied for a patent for a printing press design that allowed multiple presses to create different size, color and shapes of printed literature, while

working together without stopping. The invention (Patent No. US1581132) was not printing press, but an engineering system that became the industry standard known as the McCormick Press. This invention enabled creative products with different sizes and colors to be assembled into the production of a newspaper. All subsequent *Chicago Tribune* inventions were made practical due to the McCormick Press, and readers could continue to enjoy a daily for the price of 1 or 2 cents, and a Sunday newspaper sold usually for 5 cents.

- In 1923 William Henry Wisner, the *Chicago Tribune's* mapmaker, invented a machine for telegraphic wire transmission of black-and-white pictures. He applied for the patent in 1923, and it was issued in 1925 for a technology that was similar to a current facsimile machine (Patent No. US1538916).
- In 1924 Joseph Wissmar and Marvin Ferree of the Pacific & Atlantic Photos, Inc., a *Chicago Tribune* subsidiary, invented a wireless method for transmitting pictures and text together (Patent No. US1529473). The subsidiary was a worldwide photo syndicate, and the invention gave readers timely visual news images. In 1925, Wissmar and Ferree received the patent for their invention that transmitted black-and-white images.
- In 1925 *Chicago Tribune* printer and machine-designer Otto R. Wolf invented the color letterpress that brought color into the newspaper

on weekdays.[4] Beginning in 1932, the *Chicago Tribune* began routinely using the color letterpress for daily advertising and for front-page editorial cartoons. The patent was issued to Wolf in 1930 (Patent No. US1784037).

The mechanical materials of journalism—printing presses, paper and inks—are rarely studied, and as a result, this study investigated a fifty-year period which had little subsequent research. The point of this study was not to comprehensively explain technologies but to discover how the development of color affected to the *Chicago Tribune* and its readers. Previous studies of the *Chicago Tribune* and its publisher, and of other newspapers in the same era, have focused on politics, personalities and business issues—but not on visual news color.

Because visual journalism dominates current news practices, this case study on the *Chicago Tribune* intended to build a continuum of knowledge between the Yellow Kid cartoons of the nineteenth-century and the rise of television. The *Chicago Tribune* created most of its inventions, during the 1930s based on the publisher's philosophy to battle economic hardships through innovations that bring consumers better products. The way to survive competition with radio and television, McCormick told the American Society of Newspaper Editors in 1931, was to modernize and make a more attractive newspaper.[5]

Improvements in color did not jeopardize employee's jobs but significantly increased opportunities and wealth.[6] The value of the *Chicago Tribune* and six subsidiary companies begun in the 1920s was estimated by its accountants to be

worth $64 million in 1931 in the Great Depression. For every page of color advertising sold, one additional employee was needed to run another printing press, and the demand for artists and photoengravers increased.[7] As a result of color combined with its original editorial content, the *Chicago Tribune* had the largest circulation of any daily in the nation during McCormick's leadership. Its circulation was surpassed by a Tribune Company subsidiary, *New York Daily News,* which was a pictorial tabloid.[8]

The popularity of color pictures drove the demand for new types of newsprint, and created 4,800 jobs at the Tribune Company's paper-manufacturing subsidiaries.[9] Thus, the inventions begun at the Chicago Tribune kept driving the need for more inventions and jobs, and creativity spread from original artistic content and stories to new papermaking, and new press techniques.

Were there linkages among the printing phenomena across the decades related to the central role of printing in a democracy? In comparison to textual news, pictures have been derided for emotionally appealing to illiterate populations, rather than providing reasoned thought through literary stories in newspapers without graphics. Pictorial color is a universal characteristic of natural communications among all people, despite nationality, political persuasion, education levels and other beliefs. As a result, understanding the phenomena of visual color within the news context of the pioneer in newsprint justified the grounds for an exploration.

However, if the *Chicago Tribune's* goal had been to reach the émigrés and hard-working blue collar workers, who built Chicago through the grit of their labor, with and without literacy, then that, too, would have justified a study of visual news. Approximately one-quarter of Chicagoans in 1930 emigrated from Europe, and no doubt, comprised some of the *Chicago Tribune's* readers with growing levels of English fluencies.[10]

However, pictures can capture the essences of a condition, and color augments this function, as advanced by the new aesthetics of Carey C. Orr, chief editorial artist at the *Chicago Tribune.* Wolf's color letterpress brought an opportunity for an expressive language of symbolic color applied to front-page editorial cartoons that could communicate ideas rapidly. Orr's use of metaphorical language heightened the aesthetic impact of cartooning on entertainment and editorial artists throughout the nation, such as Shaw McCutcheon of the (Spokane) *Spokesman-Review*, Walt Disney, who once aspired to be an editorial cartoonist, and Martha Orr, who's 1930s comic Apple Mary, evolved into Mary Worth.[11]

In the absence of previous studies, this historical case study applied a cultural approach in order to ascertain the relevant phenomena. Among the diverse social, economic and military forces arose the critical problem of the ink embargo prior and during World War I. It was also valuable to discover the dependency of America's free press on goods from totalitarian Germany with advanced machinery, chemical manufacturing, color cameras, and other printing supplies. A cultural approach illuminated the human need for color after the

deprivation of war, as seen by the ascent in the *Chicago Tribune's* circulation and the public's interest in fine art.

Three lines of thought and two applications united the *Chicago Tribune's* nineteenth- and twentieth-century practices. First, the *Chicago Tribune* management and readers considered pictures in full color to be an exceptional event, due to the high quality of the printing, and the expense and labor that went into producing it on newsprint. Previously, people of means enjoyed color pictures through lithographs and engravings in expensive books. Second, the content between the two centuries engendered pride in American history, its patriots and presidents. The publication of the illuminated painting of the U.S. Constitution and the drawings of the nation's history in the golden anniversary edition in the nineteenth-century were created to cultivate national and local pride.

Little attention was given to European culture, even though it was the heritage of the majority of the populace. American art and themes represented from 72 percent to 88 percent of the content of the Chicago Tribune's color rotogravures on its Sunday section covers in 1929 and 1934 (Appendix C).

Third, American printers passed down the legacy of their skills through their families. Yetter and McCormick were from different economic backgrounds, for example, but manifested their shared values for printing. In this regard, they not only strengthened visual democracy with their fine printing techniques for pictorial color, they modernized newspapers.

In terms of the applications, innovative three-color photography was undertaken in the both centuries, establishing the *Chicago Tribune* as the visual news leader in color photography in newspapers. Significant attention has been dedicated to McCormick's and Medill's political views, but their visual journalism heritage was lost. This study corrects lost knowledge on the importance of the materials, processes and tools of news. Cheap paper was not used by either publisher to print a cheap product. Finely made newsprint and inks were used, because American journalism was important to the *Chicago Tribune's* employees.

In the nineteenth-century the question among printers was whether color pictures could be better reproduced through the etching or engraving method. The *Chicago Tribune* proved valuable functions for both, attaining superior quality with the color rotogravure, which was used for editorial content and advertising, and the color letterpress used for daily advertising and editorial cartooning.[12]

The most interesting findings relate to the *Chicago Tribune's* spirit of invention indicated by 92 patents related in some manner to visual news color. To turn from machines to the motive for inventing them, is the most interesting finding of the research. When radio and movies emerged in the early twentieth-century, media predictions for newspapers looked dismal. The reaction by the *Chicago Tribune's* employees between the two world wars was to invent everything they needed to improve their news product. Everything modern was in color, and the *Chicago Tribune's* employees sought to invent the newest

techniques. Based on their employment longevity, the quantity of their inventions, and some oral histories, they enjoyed the creative spirit.

Applying the same fighting spirit used to survive World War I, McCormick inspired innovation through two economic depressions, and he increased circulation. Despite the negative legacy that the *Yellow Kid* comics left on pictorial color, the *Chicago Tribune* persisted and showed that the readers valued newsworthy content that was produced with technical mastery. Readers preferred art reproductions in the Great Depression, which they could frame to decorate their houses. As soon as the *Chicago Tribune* introduced the color rotogravure press in 1920 and 1921, it achieved the largest circulation in the nation. This research does not claim that color pictures were the sole reason for the *Chicago Tribune's* success, but the color advertising and pictures helped capitalize the extensive news coverage.

In the Jazz Age, "modern" meant color, and the *Chicago Tribune* delivered it. The high quality of its color engravings (color rotogravures) were fine enough that consumers purchased them framed to decorate their homes. Readers the news product was valuable enough to hang on their walls. But the employee-inventors were also valued. They received contracts for 10 to 25 percent of the profits from their patented machines and intellectual properties.[13]

The three principal findings, then, were the democratizing effect of color pictures on newsprint, shown through readers' preferences for modern visuals on American culture, and the *Chicago Tribune's* soaring circulation; the proliferation of pictorial color in advertising in newsprint, which gave consumers realistic

images in the daily and Sunday papers; the democratizing influences were experienced by employee-inventors, who owned a stake in their patents and wholly received credit.

Discussion

McCormick and the employees approached the Great Depression with the fighting spirit to uplift the regional economy and survive with the success of the business community to which they were a part. When the color rotogravure advertising became too expensive in the Great Depression, the *Chicago Tribune* responded with the 1932 color letterpress. This interdependent media approach, internally and externally, offers a model for inspired media management.

Modern visual color in news did not arrive with the roll out of Gannett Company's national newspaper, *USA Today*, in the 1980s. This study brings to light the visual journalism prior to *USA Today*, though. The *Chicago Tribune* relied on the streamlined graphics that color brought, and readers could skim articles rapidly.

By describing the *Chicago Tribune's* culture of invention this study contributes to the body of knowledge on how media companies meet serious challenges and persist through innovation. The newspaper industry constantly hears that it is doomed with the arrival of each new media platform. And newspapers are considered "old media." Yet newspapers create news everyday. McCormick figured out what aspects of news production could be mass produced without losing the individual identities and purposes of the *Chicago Tribune* employees. The *Chicago Tribune* was a corporate family, not solely based on

pay and benefits. They were related through pride in their work, freedom to invent, and employees felt appreciated. Four generations of Yetters worked at the *Chicago Tribune*, two generations of Orr relatives.

The strength of this research is that the findings were triangulated with a profundity of primary sources especially relying on the patents and oral histories, with supplementation by secondary sources. The drawback of a cultural approach, which examines a broad field of phenomena, is the reduced amount of scrutiny to one single area, such as media color in the Great Depression, or pictorial color prior to World War I, or three-color photography.

Future Research

Most historical research on newspapers does not examine the technologies. The *Illustrated London News* in 1855 published the first color pictures in a newspaper, so questions related to the quality and nature of the printing were more important than, which media company achieved color first. Studying the science of color and the technologies related to pictorial imaging can challenge media researchers, who are not engineers. The discipline will need multidisciplinary studies on multi-media visual news. It is easy to ignore history in the making. There are no doubt current news companies whose employees are innovators, who will have critical stories on novel media methods. Interdisciplinary team research could be one historical approach undertaking the inquiry, and keeping archives of media products. Were it not for Janet Ginsburg of Illinois, who saved the *Chicago Tribune's* original newsprints in color, a great visual legacy would be lost. The reason no information can be found in the

history books on the *Chicago Tribune's* great accomplishments in visual journalism has been due to archival copies made with black-and-white imaging processes.

Between the two world wars the *Chicago Tribune* between left a legacy of inventions for color images, and the next generation of journalists could dedicate themselves to changing the news content and redirecting attention to social realism. The democracy of colors was not completed by the *Chicago Tribune,* which survived by reinventing what a newspaper is and means in a shared culture.

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1. Harry A. Groesbeck Jr., *The Process & Practice of Photo-Engraving* (New York: Doubleday, Page & Company, 1924), 9.

2. Allan Forman, "The Chicago Tribune's Golden Jubilee," *The Journalist*, 1897: 71; and Theodore Regensteiner, *My First Seventy-Five Years* (Chicago: Regensteiner Corporation, 1943), 98, 233.

3. George Brandenburg, "McCormick Directs Tribune Under Medill Traditions," *Editor & Publisher*, no.8 March, 1947, 72; and "Rotogravure in Colors on Newspapers," *The Inland Printer* 69 no 3 (1922), 368.

4. "Four Colors—On News Print," *The Inland Printer* 101, no. 2:42, May 1938.

5. "Better Newspapers Urged by M'Cormick," *New York Times*, April 19, 1931, 24.

6. Joseph Dugan, "New Super Press Spreads Color in Your Tribune," March 17, 1935, F1; and Robert R. McCormick to Weymouth Kirland (accountant with Kirkland Fleming Green & Martin of Chicago) September 14, 1933, Lake Forest, IL, Lake Forest College, Donnelly and Lee Library, Joseph M. Patterson Papers, McCormick Series 2, Box 53, Folder 2.

7. "Tribune Photo Studio, Specializing in Color Work, Moves to Spacious Quarters on the 20th Floor," *The Trib*, August 1935, 5.

8. *American Newspaper Annual & Directory* (New York: N.W. Ayer & Son, 1922 and 1932): and *Editor & Publisher International* Year Book (New York: *Editorial & Publisher,* 1936, 1949, and 1955).

[9] Arthur A. Schmon, Papermakers and Pioneers (New York: The Newcomen Society in North America, 1962), 2.

10. Government, U.S., "U.S. Census 1930." University of Virginia Library, Historical Census Browser, http://fisher.lib.virginia.edu/collections/stats/histcensus/php/county (accessed 7 July 2008).

11. Shaw McCutcheon, (Son of Chicago Tribune Editorial Cartoonist John T. McCutcheon), Telephone interview by author with transcript, December 1, 2006, and September 2007; and Kimberly Orr Cook (Grandson of Carey Chicago Tribune Editorial Cartoonist Carey C. Orr) Telephone interview by author with transcript, October 22, 2006; and Mrs. Dorothy J. Cook (Daughter of *Chicago Tribune* Editorial Cartoonist Carey C. Orr), March 11, 2008.

12. Regensteiner, 221.

13. Parkinson & Lane to John W. Park, Chicago Tribune, October 9, 1924 in McCormick Research Center, Wheaton, IL., Series X- 26, Box 5, Folder 9, Office of Corporate Secretary, John Yetter Patents 1912-1932, October 9, 1924.

APPENDIX A: TRIBUNE COMPANY MEDIA PATENTS

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Inventions by Employees of the Tribune Company and its Subsidiaries During Robert R. McCormick's Leadership[1]

The following patents relate to various aspects of color image production, including photoengraving, papermaking, electronic image transmissions, and cameras. The employees of the Chicago Tribune and its subsidiary companies (Appendix B) often applied for the patents under their individual names and sold their rights of ownership back to the publisher for nominal fees. With the support of the *Chicago Tribune* Publisher Robert R. McCormick, inventors conducted experiments at work and home.

While the contracts of all patents have not been located, the company's records show a pattern of purchasing the rights for nominal fees in exchange for giving the employee-inventors 10 to 25 percent of the profits or savings.[2] The employees continually made improvements on technological processes, and the patents reflect refinements and the establishment of ownership rights throughout the world.

KEY: AU = Australia; CA = Canada; FR = France; GB = Great Britain; US = United States

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[1] The cited patents are available at the following archives and databases: The Robert R. McCormick Research Center, Series X–26, Tribune Company Office of Corporate Secretary, Miscellaneous Papers 1858-1976, Box 5, Folder 9 John Yetter Patents 1912-1932, Wheaton, Ill; and In the European Patent Office, Advanced Search, from 1928 to 1955; http://ep.espacenet.com/; and In United States Patent and Trademark Office, Advanced Search, http://patft.uspto.gov/netahtml/PTO/search-adv.htm; and In Google Patent Search Beta, http://www.google.com/patents.

[2] Contracts for the sale of the rights to the color rotogravure presses invented by John Campbell Yetter are held in the archives of the McCormick Research Center, First Division Museum, Wheaton, Illinois, Series X-26, Tribune Company Office of Corporate Secretary, Miscellaneous Papers 1858-1976, Box 5, Folder 9, John Yetter Patents 1912-1932.

DATE	INVENTION/ INVENTOR	NATIONAL PATENT NO.	APPLICANT
1. 10/17/1916	Rotogravure printing press automatic ink removal scraper John C. Yetter	US1201787	John C. Yetter
2. 10/17/1916	Rotogravure printing press high-speed drying John C. Yetter	US1201788	John C. Yetter
3. 04/12/1921	Centrifugal paper pulp thickener Julius T. Jaeger	US1374377	Julius T. Jaeger
4. 07/05/1921	Paper-roll storage & delivery Robert R. McCormick	US1383318	Robert R. McCormick
5. 03/03/1923	Color rotogravure press John C. Yetter	AU11353	Tribune Co.
6. 04/03/1923	Method for multicolor intaglio printing	AU11354	Tribune Co.
7. 10/30/1923	Mechanism for drying newsprint John C. Yetter	US1472450	John C. Yetter
8. 07/07/1924	Continuous press for multicolor multi-impressions Otto R. Wolf	GB218697	Otto R. Wolf
9. 07/07/1924	Multicolor printing press John C. Yetter	GB218698	John C. Yetter
10. 08/12/1924	Multicolor printing press John C. Yetter: Otto R. Wolf	US1504409	John C. Yetter Otto R. Wolf
11. 03/10/1925	Electronic picture transmission Marvin Ferree; Joseph Wissmar	US1529473	Pacific & Atlantic Photos
12. 05/26/1925	Printing registration table Theodore C. Schultz	US1538908	Tribune Co.
13. 05/26/1925	Means for telegraphing photos William H. Wisner	US1538916	Tribune Co.
14. 07/21/1925	Wood chip cooking apparatus for papermaking Julius T. Jaeger	CA251874	Julius T. Jaeger
15. 09/12/1925	Telautographic needle holder Marvin Ferree; Joseph Wissmar	FR594427	Pacific & Atlantic Photos
16. 09/12/1925	Humidity control for printing	FR594428	Pacific & Atlantic Photos
17. 09/12/1925	Electronic images receiver	FR594429	Pacific & Atlantic Photos

DATE	INVENTION/ INVENTOR	NATIONAL PATENT NO.	APPLICANT
18. 11/10/1925	Phototelegraphic transmitting plate Marvin Ferree; Joseph Wissmar	US1561067	Pacific & Atlantic Photos
19.12/15/1925	Staging bracket John C. Yetter	CA256333	John C. Yetter
20. 02/09/1926	Apparatus for cooking wood chips Julius T. Jaeger	US1572723	Julius T. Jaeger
21. 04/20/1926	Printing press Robert R. McCormick	US1581132	Robert R. McCormick
22. 04/20/1926	Multicolor intaglio printing press John C. Yetter	US1581151	Tribune Co.
23. 04/19/1927	Multicolor press plate carrier Godfrey Lundberg	US1624959	Tribune Co.
24. 07/26/1927	Printing press Robert R. McCormick	US1636917	Robert R. McCormick
25. 09/13/1927	Apparatus for moving paper rolls Frederick von der Horst	US1641998	Frederick von der Horst
26. 03/06/1928	Printing press Otto R. Wolf	US1661209	Tribune Co.
27. 03/13/1928	Camera plate carriage Godfrey Lundberg	CA278601	Tribune Co.
28. 04/17/1928	Telautographic needle holder Marvin Ferree; Joseph Wissmar	US1666330	Pacific & Atlantic Photos
29. 06/25/1929	Polishing printing cylinder metals Ernst P. Mars	US1718827	Tribune Co.
30. 10/15/1929	Drying apparatus Otto R. Wolf	US1731603	Tribune Co.
31. 01/21/1930	Shiftable unit press for paper folding Robert R. McCormick	US1744131	Robert R. McCormick
32. 01/21/1930	Printing press Robert R. McCormick	US1744132	Robert R. McCormick
33. 01/22/1930	Printing press improvements Robert R. McCormick	AU24755/30	Robert R. McCormick
34. 08/26/1930	Printing press Robert R. McCormick	CA303336	Robert R. McCormick
35. 12/09/1930	Multicolor letterpress Otto R. Wolf	US1784037	Tribune Co.

DATE	INVENTION/ INVENTOR	NATIONAL PATENT NO.	APPLICANT
36. 02/07/1931	Printing press improvements Robert R. McCormick	GB352003	Robert R. McCormick
37. 10/06/1931	Roll handling apparatus Frederick von der Horst	US1826107	Tribune Co.
38. 01/26/1932	Printing plate underlay device John W. Barnhart	US1842774	News Syndicate Co.
39. 03/08/1932	Newspaper dispatch conveyer Otto R. Wolf	US1849045	Tribune Co.
40. 04/12/1932	Matrix delivery line casting device Sylvester J. Sennett	US1853288	Tribune Co.
41. 05/03/1932	Paper roll hoisting plug Frederick von der Horst	US1857091	Tribune Co.
42. 12/20/1932	Printing press Otto R. Wolf	US1891614	Tribune Co.
43. 03/14/1933	Paper roll handling device Frederick von der Horst	US1901482	Tribune Co.
44. 07/25/1933	Printing press roll stand Otto R. Wolf	US1919456	Tribune Co.
45. 07/10/1934	Typographical machine Walter H. Medford	US1965747	News Syndicate Co.
46. 12/04/1934	Printing press ink fountain Otto R. Wolf	US1983115	Tribune Co.
47. 12/31/1935	Aluminum and zinc printing plate preparation Otto R. Wolf	CA355014	Otto R. Wolf
48. 04/07/1936	Surface finishing apparatus for printing cylinders John W. Barnhart; William G. Dodge; William Baumrucker Jr.	US2036315	News Syndicate Co.
49. 04/28/1936	Doctor blade trimming apparatus Gustave A. Friess	US.2039161	News Syndicate Co.
50. 05/12/1936	Gravure printing process Arthur Dultgen	US2040247	Arthur Dultgen
51. 06/23/1936	Gravure printing process Arthur Dultgen	CA358611	Arthur Dultgen
52. 07/07/1936	Multicolor registration printing device Gustave A. Friess	US2046508	News Syndicate Co.

DATE	INVENTION/ INVENTOR	NATIONAL PATENT NO.	APPLICANT
53. 07/14/1936	Printing press auxiliary ink attachment Otto R. Wolf	US2047605	Tribune Co.
54. 11/03/1936	Paper slice machine John Devine Alexander	CA361555	Ontario Paper Co.
55. 11/17/1936	Mechanism for measuring color change Cleo E. Tarvin; William G. Dodge	US2060957	News Syndicate Co.
56. 11/24/1936	Doctor blade washing apparatus Gustave A. Friess	US2061730	News Syndicate Co.
57. 04/06/1937	Apparatus for drying carbon tissues Gustave A. Friess	US2076367	News Syndicate Co.
58. 04/27/1937	Apparatus for cooling a printing couple Gustave A. Friess	US2078378	News Syndicate Co.
59. 04/27/1937	Adjustment mechanism for inking apparatus Otto R. Wolf	US2078520	Tribune Co.
60. 10/26/1937	Method of producing gravure etchings Arthur Dultgen	US2096794	Arthur Dultgen
61. 03/29/1938	Printing press ink fountain Gustave A. Friess	US2112459	News Syndicate Co.
62. 06/14/1938	Apparatus for drying printing plates John Peters; Harold M. Crosby	US2120471	News Syndicate Co.
63. 09/13/1938	Slime accumulation elimination Charles A. Sankey	CA376445	Ontario Paper Co.
64. 01/03/1939	Multi-unit press registration device Arthur Dultgen; Anton Stobb; Max Stoessel	US2142501	Arthur Dultgen; Max Stoessel
65. 02/28/1939	Printing press paper drying Gustave A. Friess	US2148739	News Syndicate Co.
66. 06/06/1939	Gravure printing plate production Arthur Dultgen	CA381796	Arthur Dultgen
67. 01/07/1941	Printing press confines for ink mist Otto R. Wolf	US2227616	Tribune Co.
68. 11/04/1941	Printing press plate method Albert L. Lengel	US2261554	Tribune Co.
69. 01/13/1942	Printing press register apparatus Max Stoessel	CA402220	News Syndicate Co.

DATE	INVENTION/ INVENTOR	NATIONAL PATENT NO.	APPLICANT
70. 03/17/1942	Method for half-tone reproductions Harold M. Crosby	US2276718	News Syndicate Co.
71. 04/20/1943	Multi-unit registration device Curtis S. Crafts; Christopher V. Knell	US2317095	News Syndicate Co.
72. 04/27/1943	Multi-unit registration improvements A.H. Stevens	GB552805	News Syndicate Co.
73. 10/24/1944	Newspaper assembly method Otto R. Wolf	US2361140	Tribune Co.
74. 01/25/1946	Apparatus for separating paper materials	GB574908	Ontario Paper Co.
75. 03/05/1946	Printing press slitter mechanism Otto R. Wolf	US2395950	Tribune Co.
76. 08/06/1946	Logging trailer for paper Gordon Godwin	US2405299	Ontario Paper Co.
77. 09/24/1946	Apparatus for separating paper materials James R. Dunbar	CA437146	Ontario Paper Co.
78. 03/04/1947	Logging trailer for paper Gordon Godwin	CA440026	Ontario Paper Co.
79. 10/27/1947	Paper pulp manufacture Bruce R. Mead; John H. Fisher	CA444664	Ontario Paper Co.
80. 12/02/1947	Flat screen drive Percy Ritchie Sandwell	CA445376	Ontario Paper Co.
81. 08/10/1948	Photogravure plate improvements	GB606206	News Syndicate Co.
82. 02/15/1949	Multicolor printing press Otto R. Wolf	US2462032	Tribune Co.
83. 08/30/1949	Gravure printing plates Arthur Dultgen	US2480400	News Syndicate Co.
84. 06/17/1952	Layout board for photographic reproduction Max H. Jones	US2600505	Tribune Co.
85. 06/17/1952	Pulping lignocellulose with sodium aluminate John H. Fisher; Bruce R. Mead	US2601110	Ontario Paper Co.
86. 10/15/1952	Plastic printing plate improvements Henry M. Richardson	GB681021	News Syndicate Co.

DATE	INVENTION/ INVENTOR	NATIONAL PATENT NO.	APPLICANT
87. 06/17/1953	Curved plastic plate improvements Henry M. Richardson	GB692918	News Syndicate Co.
88. 11/16/1954	Plastic printing plate improvements Henry M. Richardson; William Baumrucker Jr.	CA507409	News Syndicate Co.
89. 12/28/1954	Gravure plate-making methods Arthur Dultgen	CA508583	News Syndicate Co.
90. 01/25/1955	Method for intaglio engraving Fred Lando	US2700609	News Syndicate Co.
91. 03/01/1955	Matrix for production of plastic printing plates Henry M. Richardson	US2703051	News Syndicate Co.
92. 08/30/1955	Matrix for production of plastic printing plates Henry M. Richardson	CA516140	News Syndicate Co

APPENDIX B: TRIBUNE COMPANY SUBSIDIARIES PRIOR TO WORLD WAR II

APPENDIX B: TRIBUNE COMPANY SUBSIDIARIES[1] PRIOR TO WORLD WAR II

SUBSIDIARY	FUNCTION
Chicago Daily Tribune, 1847	Daily newspaper
Chicago Tribune Wireless, Inc., 1928	Transoceanic wireless
Chicago Tribune Transportation Co. Ltd., c1920s	Cargo ships for newsprint
Coloroto Corp., 1922	*Coloroto Magazine*
Franquelin Lumber and Pulp Wood Co., c1920s	Canadian wood pulp
Illinois Atlantic Corp., c 1940s	U.S. newsprint and raw materials shipping
Illustrated Daily News, 1919	*(New York) Daily News* pictorial tabloid
Liberty Weekly, Inc., 1924 - 1931	National magazine
News Supply Co., c1920s	Distribution of newspapers
News Syndicate Co., c1920s	Syndicated news and fiction
Ontario Paper Co., 1911	Canadian paper mill
Ontario Transportation and Pulp Co. Ltd., 1914	Canadian shipping
Pacific & Atlantic Photos, Inc., 1922 - 1932	Syndicated photos
Quebec North Shore Paper Co., 1938 - 1993 (later Quebec and Ontario Paper Co.)	Canadian paper mill
Quebec and Ontario Transportation Co.	Canadian shipping
Tonawanda Paper Co., 1923-1931 (formerly Daily News Paper Corp.)	N.Y. paper mill
Tribune European Edition, 1918 – 1934 (formerly Army Edition, 1917)	*The Paris Edition*
Tribune Building Corp.	Corporate headquarters
WGN radio, 1920, formerly 9ZN	Radio reception and broadcast

[1] Most Tribune Co. subsidiaries began between the two world wars. The sources for the *Chicago Tribune*, Chicago Tribune Transportation Co. Ltd., Coloroto Corp., Daily News Paper Corp., Franquelin Lumber & Pulpwood Co., Ltd., Newspaper Supply Co., News Syndicate Co., Ontario Paper Co., Pacific & Atlantic Photos, and Tribune Building Corp. can be found at Lake Forest College, Donnelley and Lee Library Special Collections, Joseph M. Patterson Papers, Series I, Boxes 1-50, Annual Meeting Reports, "Consolidated Cash Report,12 April 1924;" and IN Warren Curtis Jr. letters to Robert. R. McCormick, 31 March 1925, and 2 April 1925.

For profit and losses in the 1930s, see: Price, Waterhouse & Co. letter to Robert R. McCormick, 7 June 1932, Lake Forest College, Donnelley and Lee Library Special Collections, Joseph M. Patterson Papers, Series 2, Box 53,
Folder 1. Also see: "Board of Directors Meetings" in 1929, Series I, Subseries 9, Box 48, Folder 1.

Additional sources for the News Syndicate can be found in "Chicago Tribune-N.Y. News Syndicate, Inc., Comparative Statement of Average Weekly Earnings, April 1940 – April 1941," Publishing Enterprises, Series I, Subseries 8, Box 46, Folder I.

The sources for the Ontario Paper Co. and the Quebec North Shore Paper Co. are from Arthur A. Schmon, *Papermakers and Pioneers:The Ontario Paper Company Limited and Quebec North Shore Paper Company*. New York: The Newcomen Society in North America, 1963, 6-9.

For Tonawanda Paper Co. and *Liberty Weekly* sources, see "New York News Buys Ground for 10 Million Home," *Chicago Tribune*, 13 February 1918, 4; and In "Commercial Leases," *New York Times*, 28 August 1924, 29.

For information on the European edition, see Waverley Root, *The Paris Edition*. San Francisco: North Point Press, 1989, vii. For subsidiaries for newsprint and shipping, see: Carl Wiegman, *Trees to News*. Toronto: McClelland & Stewart Ltd, 1953, 27, 111, 240, 348. Coloroto sources can be found in "Business Survey: Analysis of Contents of Coloroto Magazine, Second Period, January – June, 1923," Lake Forest College, Donnelley and Lee Library Special Collections, Joseph M. Patterson Papers, Series I, Subseries 7, Box 41, Folder 4.

For wireless sources see, "Newspapers File 10 Radio Charters," *New York Times*, 27 November 1928, 41.

APPENDIX C: CONTENT ANALYSIS

APPENDIX C: CONTENT ANALYSIS*
CHICAGO TRIBUNE "PICTURE SECTION" COVERS
Full Color Publishing
January – June, 1929 and 1934

Figure 27. *Chicago Tribune*, March 3, 1929, President Herbert Hoover, a photo by Godfrey Lundberg, a *Chicago Tribune* inventor. (Michigan State University Collection, Reprinted with permission of *Chicago Tribune*.)

Figure 28. *Chicago Tribune*, June 3, 1934, a painting by Thomas Moran of the 1893 World's Fair. Sepia ink on the back side of page shows through the newsprint (Michigan State University Collection, Reprinted with permission of *Chicago Tribune*.)

Picture Section Covers	1929 (N=26)	1934 (n=25)
American Art	88% (n=73)	72% (n=38)
Drawings/Paintings	15% (n=73)	53% (n=28)
Patriotic Art†	08% (n=7)	07% (n=4)
Photographs	84% (n=71)	47% (n=25)
Montage‡	12% (n=10)	05% (n=3)

*Sources for the analysis were Indiana University Library, ProQuest Historical Newspapers, *Chicago Tribune;* and Michigan State University *Chicago Tribune* Historical Collection.

† Patriotic images consisted of full-page or half-page of photographic portraits of U.S. Presidents and battles scenes. The dominance of the patriotic images on the news pages without other art to distract from it signified the importance of the art, and readers could easily frame them.

‡ More than three images gathered to create one composition were considered a "montage."

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LOC = Library of Congress, Serials and Periodicals Division, Washington, D.C.

MRC = McCormick Research Center, Cantigny, Wheaton, IL.

MSU = Michigan State University, College of Communication Arts & Sciences, East Lansing, MI.

SAA = Smithsonian Archives of American Art, Washington, D.C.

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