

# A concise history of pop-up and movable books

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"Mechanical books should look like ordinary books. Their success is to be measured by the ingenuity with which their bookish format conceals unbookish characteristics."

Because books are by design two-dimensional, it might seem impossible for a page to add motion or depth other than through illustrations with perspective and illusion. And yet, for more than 700 years, artists, philosophers, scientists, and book designers have tried to challenge the book's bibliographic boundaries. They have added flaps, revolving parts, and other movable pieces to enhance the text.

It is not known who invented the first mechanical device in a book, but one of the earliest examples was produced in the 13th century by Catalan mystic and poet Ramon Llull of Majorca who used a revolving disc or volvelle to illustrate his theories. Throughout the centuries volvelles have been used for such diverse purposes as teaching anatomy, making astronomical predictions, creating secret code, and telling fortunes.

Yet, while it can be documented that movable parts had been used for centuries, they were almost always used in scholarly works. It was not until the 18th century that these techniques were applied to books designed for entertainment, particularly for children.

F. J. Harvey Darton, English authority on children's books, wrote that before 1770 there were virtually no books "produced ostensibly to give children spontaneous pleasure, and not primarily to teach them, not solely to make them good, nor to keep them profitably quiet." London book publisher Robert Sayer changed that with the production of "metamorphoses" books. These books, which were also called "turn-up" books or "harlequinades," afforded amusement, not so much through their printed contents, but through their illustrations that changed and kept pace with the story. "Metamorphoses" books were composed of single, printed sheets folded perpendicularly into four. Hinged at the top and bottom of each fold, the picture was cut through horizontally across the center to make two flaps that could be opened up or down. When raised, the pages disclosed another hidden picture underneath, each having a few lines of verse.

Other early examples of movable books were the Paper Doll Books produced by London publisher S. & J. Fuller beginning in 1810; the "toilet book," and an early example of a lift-the-flap book, first illustrated and published by the artist William Grimaldi in the 1820's; and peep-show books. Little or nothing is known of the origin of the peep-shows but they appear to have evolved from the traveling exhibits that showmen featured at fairs and festivals. They were often quite elaborate constructions depicting scenes from famous stories or topical events and were viewed through a small hole in the cover.

The first true movable books published in any large quantity were those produced by Dean & Son, a publishing firm founded in London before 1800. By the 1860's the company claimed to be the "originator of children's movable books in which characters can be made to move and act in accordance with the incidents described in each story." From the mid-19th century Dean turned its attention to the production of movable books and between the 1860's and 1900 they produced about fifty titles.

To construct movable books, Dean established a special department of skilled craftsmen who prepared the hand-made mechanicals. The designers used the peep-show principle of cut-out scenes aligned one behind the other to give a three-dimensional effect. Each layer was fixed to the next by a piece of ribbon that emerged behind the uppermost portion, and when this was pulled, the whole scene sprang up into perspective.

Dean also introduced movable books with transformational plates based on the *jalousie* or Venetian blind principle. The illustrations in these books had either a square or an oblong picture divided into four or five equal sections by corresponding horizontal or vertical slits. When a tab at the side or bottom of the illustration was pulled, the picture "transformed" into another picture.

Read and Ward & Lock, Darton were two other London publishers of movable books, but Raphael Tuck was the first publisher to seriously challenge Dean & Son. In 1870 Tuck and his sons founded a publishing business in London that produced luxury paper items including scrapbook pictures, valentines, puzzles, paper dolls, and decorated papers. In the genre of movable books, Tuck published "Father Tuck's 'Mechanical' Series." The series included stand-up items with three-dimensional effects as well as movable books. To produce these books, Tuck, like Dean, formed editorial and design studios in London where volumes of high pictorial quality were produced. All of the printing, however, was done in Germany. The Germans developed a mastery of color printing in the second half of the 19th century and their equipment and techniques superbly reproduced the finest art work.

Another 19th century publisher who specialized in movable books was Ernest Nister. His printing business, begun in 1877, was capable of producing works by all of the major processes of the time. However, despite his wide range of publishing endeavors, he is best known for his movable books that were published from 1890. Nister's works were similar to those produced by his contemporaries but Nister's illustrations stood up automatically. The books had figures that were die-cut and mounted within a three-dimensional peepshow framework. The figures were connected by paper guides so that as the pages were turned, the figures lifted away from the page within the perspective-like setting. Nister also produced movable books with dissolving and revolving transformational slats.

The distribution of Nister titles was not limited to European markets, the New York firm of E.P. Dutton worked in conjunction with Ernest Nister to promote and sell the publisher's titles in the United States.

The most original movable picture books of the 19th century were devised by Lothar Meggendorfer. The Munich artist had a rare comic vision that was transmitted both through his art and through ingenious mechanical devices. In contrast to his contemporaries, Meggendorfer was not satisfied with only one action on each page. He often had five parts of the illustration move simultaneously and in different directions. Meggendorfer devised intricate levers, hidden between pages, that gave his characters enormous possibilities for movement. He used tiny metal rivets, actually tight curls of thin copper wire, to attach the levers, so that a single pull-tab could activate all of them, often with several delayed actions as the tab was pulled further out. Some illustrations used more than a dozen rivets.

McLoughlin Brothers of New York produced the first American movable books. Innovators of printing techniques, McLoughlin issued two separate "Little Showman's Series" in the 1880's each containing three-dimensional scenes. These large, colorful plates unfolded into multi-layered displays.

Few movable books were produced once the first World War began. The manufacture of movable books was labor-intensive. Presumably, after 1914 the labor force in the German printing works was required for less frivolous tasks.

However, in 1929 a new series of movable books was initiated. British book publisher S. Louis Giraud conceived, designed, and produced books with movable illustrations described as "living models." While the term had yet to be used, these were authentic "pop-up" books. Each title contained at least five, double-page spreads that erected automatically when the book was opened and had illustrations that could be viewed from all four sides.

Unlike his German precursors, Giraud's books were moderately priced. They were produced on coarse, absorbent paper, employing crude photolitho printing and color reproduction techniques, and were finished with inexpensive covers and bindings. Between 1929 and 1949 Giraud produced a series of 16 annuals, first for the Daily Express and later as an independent publisher using the trade names "Strand Publications" and "Bookano Stories." Each annual included stories, verses, and illustrations as well as five or more pop-ups. Giraud's books reached a wide audience and were very popular.

As the Depression years deepened, American book publishers sought ways to rekindle book buying. In the 1930's Blue Ribbon Publishing of New York hit upon a combination that proved successful. They animated Walt Disney characters and traditional fairy tales with pop-ups. Blue Ribbon was the first publisher to use the term "pop-up" to describe their movable illustrations.

McLoughlin Brothers reentered the movable book market in 1939 with the publication of their first Jolly Jump-up title. The commercially successful Jolly Jump-up series included ten titles illustrated by Geraldine Clyne.

A new group of artists and publishers entered the movable book market in the 1940's. *The exciting adventures of Finnie the fiddler* was the inaugural book of a series of titles featuring the animation of Julian Wehr. Wehr's illustrations were printed on lightweight paper and had tab-operated mechanicals. By moving the tab, which extended through the side or lower edge of the illustrated page, the various parts of the animation were put in motion. The action was transmitted to as many as five different parts of the picture.

Beginning in the late 1950s a series of remarkably innovative pop-up books was produced by Artia in Prague, Czechoslovakia, a state-run import/export agency. Voitech Kubasta was their preeminent artist and the creator of dozens of pop-up books. Bancroft & Co. (Publishers) of London marketed the Czechoslovakian titles.

In the mid-1960s American Waldo Hunt, President of Graphics International, a Los Angeles-based print brokerage company, was creating dimensional pop-up magazine inserts and premiums. Inspired by the Czechoslovakian works, and deterred in an attempt to market them in the U.S., he began to produce his own pop-up books. This decision led to the renaissance of pop-up books as we now know them. Graphics International moved to New York in 1964 and with the publication of *Bennett Cerf's pop-up riddles* in 1965, began producing books for Random House.

Hallmark Cards purchased Graphics International at the end of the decade and the staff moved to Kansas City, Missouri. With more than forty successful titles produced for Hallmark, Hunt left in 1974 to return to California where he began a book packaging company, Intervisual Communications, Inc. Today there are a number of packaging companies such as Compass Productions, White Heat, Ltd., Van der Meer Paper Design, Sadie Fields Productions, and Designamation to name a few, and the number of pop-up books has grown tremendously. There are between 200 and 300 new pop-up books produced in English each year.

The publication of pop-up books is production involving the skills of a number of individuals. The creation of the book begins with a concept, story line and situation. Once the basics are worked out, the project goes to the "paper engineer" who takes the ideas of the author and the illustrator and puts motion into the characters, and action into the scenes. They may even add sound, as in a book where the opening and closing of the pages cause the teeth of a saw to run across a log.

The paper engineer's task is to be both imaginative and practical. The designer must determine how movable pieces attach to the page so they won't break, which points need glue and how much, how long pull tabs should be and how high a piece can pop up. The final step for the paper engineer is to lay out or "nest" all the pages and pieces so they fit onto the size sheet that will be run through the printing press.

All contemporary pop-up books are assembled by hand most in Colombia, Mexico, or Singapore. After printing, the nesting pieces of a book are die-cut from the sheets and collated with their pages. Production lines are set up, with as many as 60 people involved in the handwork needed to complete one book. These people fold, insert paper tabs into slits, connect paper pivots, glue and tape. Alignment of tip-on pieces with the printed page must be exact and angles must be precise. The most complex books can require over 100 individual handwork procedures.

The movable books of the last two decades have become increasingly complex with sophisticated pop-up illustrations and intricate mechanical devices. The addition of lights and music in some titles has contributed to the surprise of the mechanical illustrations. Pop-up and movable books are not ordinary books. For more than 100 years their ingenious mechanical devices have surprised and entertained readers of all ages.

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[mjoseph@libraries.rutgers.edu](mailto:mjoseph@libraries.rutgers.edu) The term pop-up book is often applied to any book with three-dimensional pages, although properly the umbrella term movable book covers pop-ups, transformations, tunnel books, volvelles, flaps, pull-tabs, pop-outs, pull-downs, and more, each of which performs in a different manner. Also included, because they employ the same techniques, are three-dimensional greeting cards.

Pop-up books are just one type of what are known as movable books, or books that in some way move to illustrate information or a story. Rubin has always employed a broad definition for her collection. "If you have to manipulate it in order to understand the illustration, or the story, or the text, or whatever it is that the writer is trying to convey," she says, "then it is movable and fits into the criteria for my collection." Kubaĳta is one of several notable artists in the long history of movable books, including the man widely considered the foremost genius of the form, Lothar Meggendorfer. Meggendorfer didn't make pop-ups, but his movable books were exceptional. The publication of pop-up books is production involving the skills of a number of individuals. The creation of the book begins with a concept, story line and situation. Once the basics are worked out, the project goes to the "paper engineer" who takes the ideas of the author and the illustrator and puts motion into the characters, and action into the scenes. They may even add sound, as in a book where the opening and closing of the pages cause the teeth of a saw to run across a log. The paper engineer's task is to be both imaginative and practical. Pop-up and movable books are not ordinary books. For more than 100 years their ingenious mechanical devices have surprised and entertained readers of all ages.

References. Pop-Up Books and Moveable Devices :: Photo Essay :: University of Rochester (Not a cake, but inspiration.) TheMovableBookSociety. Museums and Libraries with Pop-up and Movable Books. Did you know that movable books date back to the 13th century every movable book is hand-made, even today movable books were originally made for adults and still are the artists who animate the illustrations are called "Paper Engineers" there is a Society for movable booklovers like the Popuplady? TheMovableBookSociety. Museums and Libraries with Pop-up and Movable Books. The Collection of Larry Seidman. A Concise History of Pop-up and Movable Books by Ann Montanaro. Blue Roof Designs. Bookbinding | Resources.