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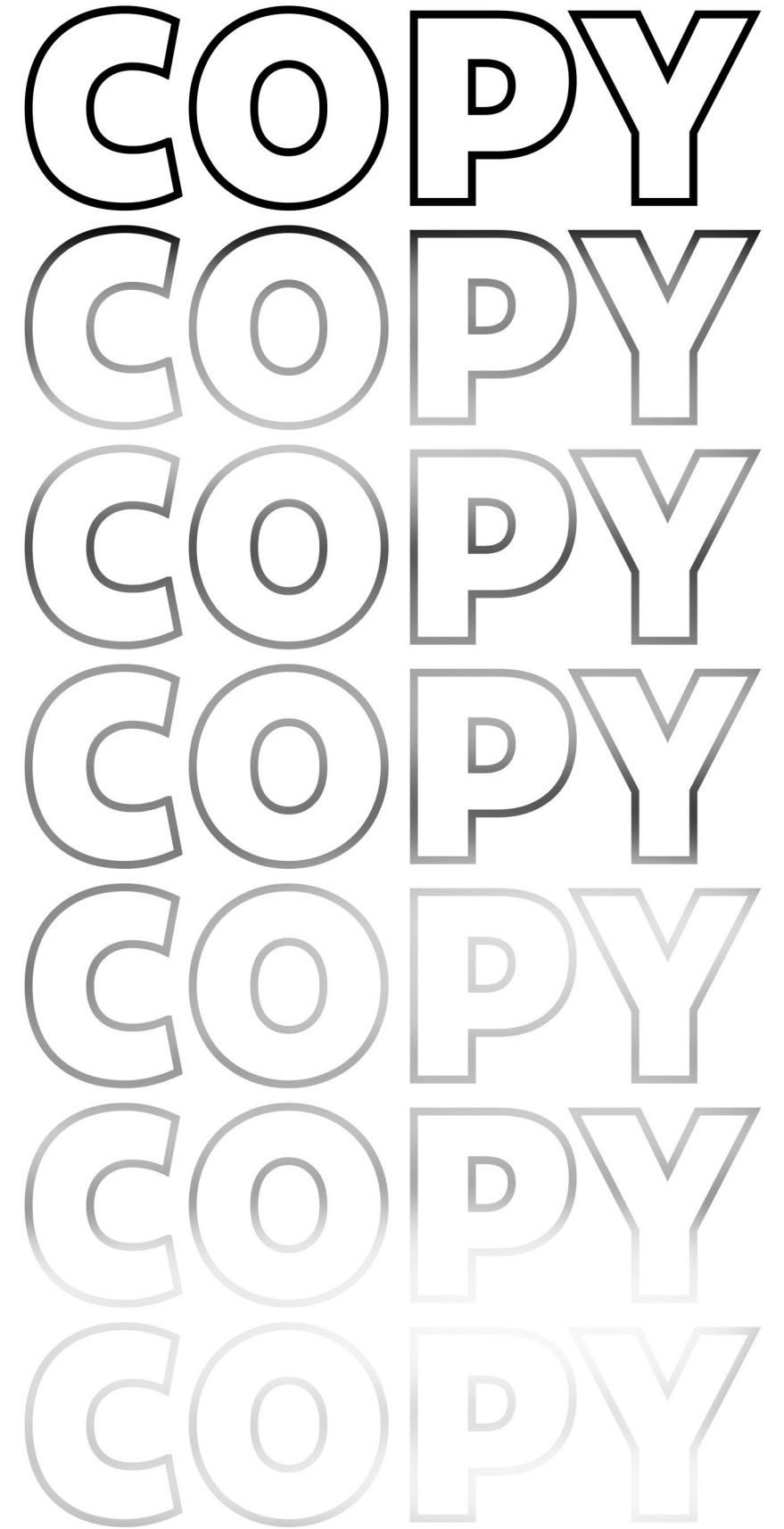


# THE PRINT ISSUE

From the days of Johannes Gutenberg's first printing press to 3D printing our shoes, today print has had a fascinating journey. In the Print Issue of Know Thy Art magazine, we discuss some of the coolest, traditional printing techniques, the role of print in the future and the influence of print design in the creative sector.

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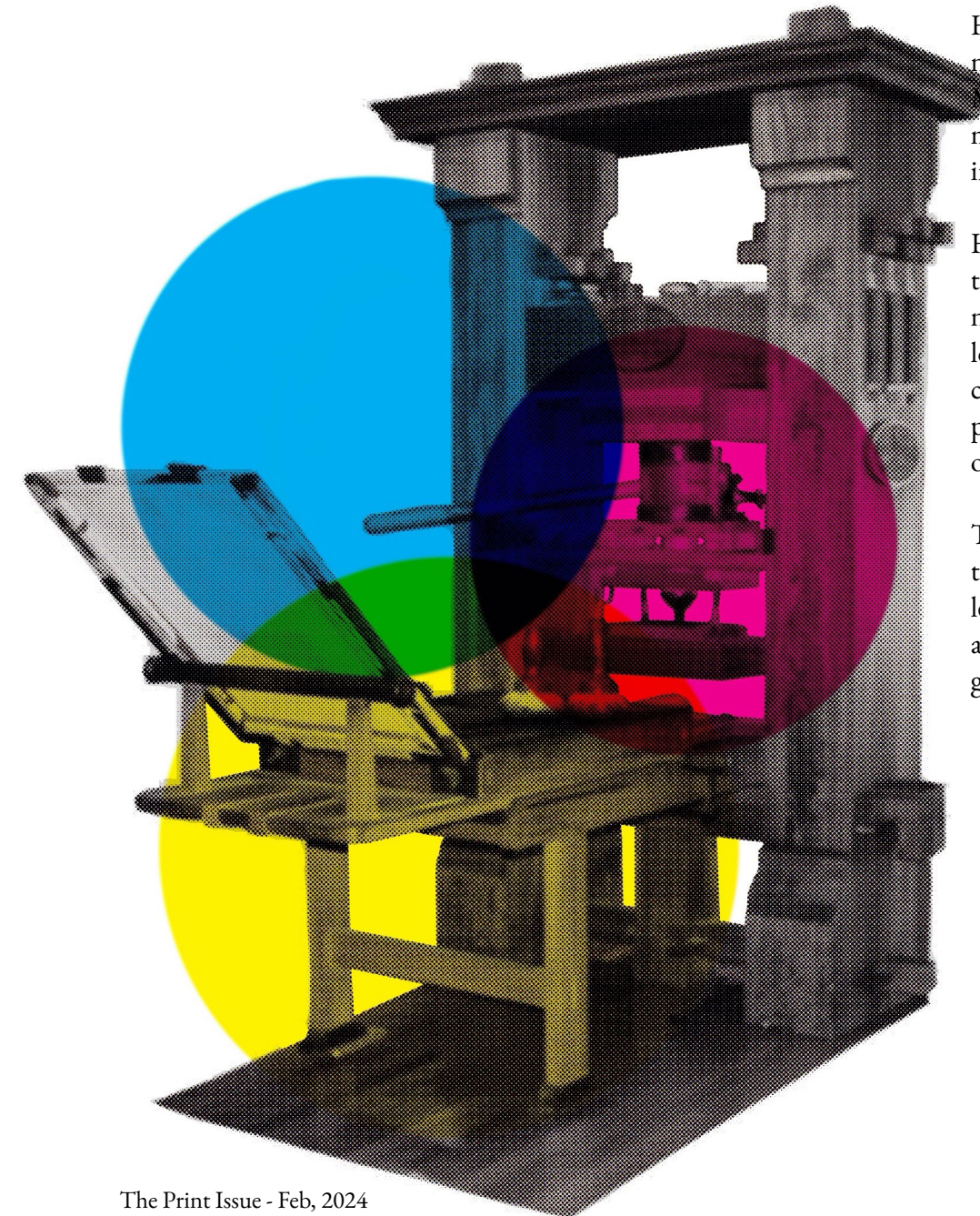
# PRINT: IN RETROSPECT

In the year 1436, Johannes Gutenberg invented the printing press. To fully understand the impact of this invention, we must compare what life was like before and after the press. Mesopotamians wrote on rock, so did many other cultures around the world. Later on, animal hide, palm leaves, papyrus and bamboo reeds for writing were used. Countries like Egypt, China, India, South America and Europe have archeological evidence that supports the use of such material to preserve the written word. During the Han Dynasty in 105 in China, something groundbreaking happened. A courtier named Ts'ai Lun invented paper! This is when hand-writing text and illustrations to make books began. You could imagine the value of a book as thick as the Bible if it were hand-written.

Luckily, Gutenberg's invention means a new addition to your bookshelf doesn't have to break the bank. With the use of the printing press, the books that took years to write, were now published in a matter of days.



Image: Gutenberg Press - International Printing Museum



Furthermore, copies were easily made by using the same printing plates over and over again. Voilà! Mass production was possible in the literary and publication sector.

Gutenberg's religious convictions were his incentive to invent the printing press to publish the Bible.

He believed the holy book should not be exclusive to just the clergy. Mass printing and publication meant that the laity could read and interpret the word for themselves.

Hand-written on animal hide, taking years to complete, this book no longer needed to be under lock and key because it was now commonplace. Fast forward to the present day, every hotel has a copy of the Bible in the bedside drawer.

The printing press did not just take the publication industry ahead by leaps and bounds. Even print design and advertising design benefitted greatly from Gutenberg's work.

# PRINT TECHNIQUES TODAY



Textures, ink bleeds, colour grading, emboss, depth and other characteristics are unique to different printing machines. Even though digital printing is the current norm in the print industry, classic printing machines are still used for novelty projects. Let's explore Linocut, Cyanotype, Risograph, Silkscreen, Letterpress, Halftone Repographic and Digital Printing.

## LINOCUT PRINTING

Linocut printing is as close as it gets to the age-old technique of block printing. A design is first traced on a linoleum pad and carved out. A roller is then used to apply ink on the carved lino sheet.

It is then used as a stamp block to print an impression of the design. The inks used will depend on the surface, for instance, fabric ink will be used to print on fabrics.



Surface pattern print of linocut stamp pad on page 19-20

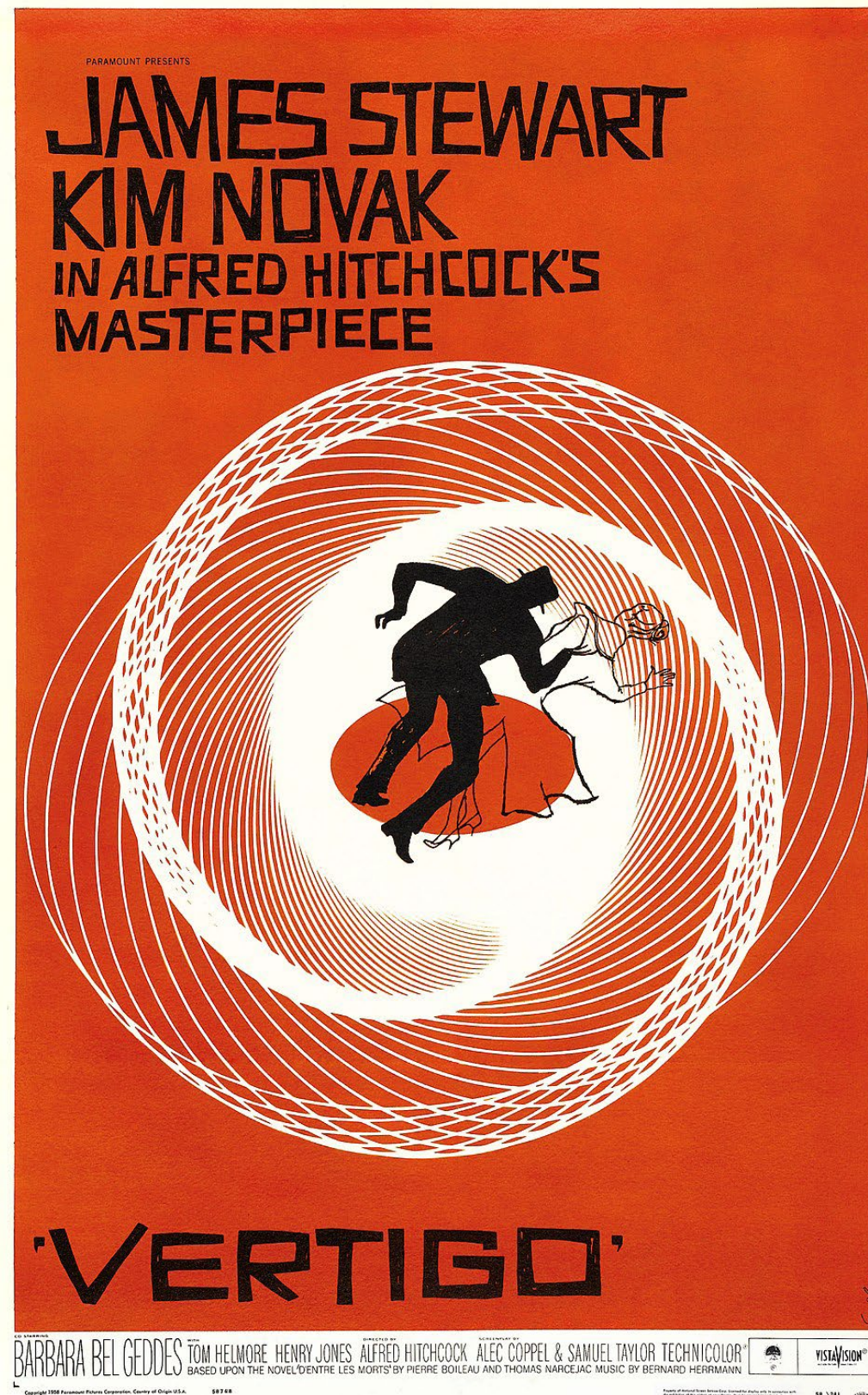


This is a printing technique where exposure to the sun is used to get an impression of the object on paper. In a way, cyanotype is like getting a photographic scan. Pressed leaves and flowers are generally the subjects of cyanotype printing. The special cyanotype paper once exposed to the sun turns an indigo blue.

## CYANOTYPE PRINTING

## RISOGRAPH PRINTING

This Japanese printing technique was developed by the Riso Kagaku Corp in 1980. In this technique, a Risograph printer is used to print one colour at a time. This means the paper goes through the machine multiple times depending on how many colours feature in the artwork. While the paper goes through the machine numerous times, it can shift by a few millimetres. This error in the process results in unique chromatic aberration, so that no two Risograph artworks are identical.



PARAMOUNT PRESENTS  
**JAMES STEWART**  
**KIM NOVAK**  
 IN ALFRED HITCHCOCK'S  
**MASTERPIECE**

**'VERTIGO'**

STORY BY BARBARA BEL GEDDES. COSTUME DESIGNER TOM HELMORE. CASTING BY HENRY JONES. DIRECTED BY ALFRED HITCHCOCK. EXECUTIVE PRODUCERS ALEC COPPEL & SAMUEL TAYLOR. PRODUCED BY ALFRED HITCHCOCK. MUSIC BY BERNARD HERRMANN. BASED UPON THE NOVEL 'D'ENTRE LES MORTS' BY PIERRE BOILEAU AND THOMAS NARCEJAC. TECHNICAL ADVICE BY SAMUEL TAYLOR. VISTAVISION. Copyright 1958 Paramount Pictures Corporation. Country of Origin U.S.A. 587 44

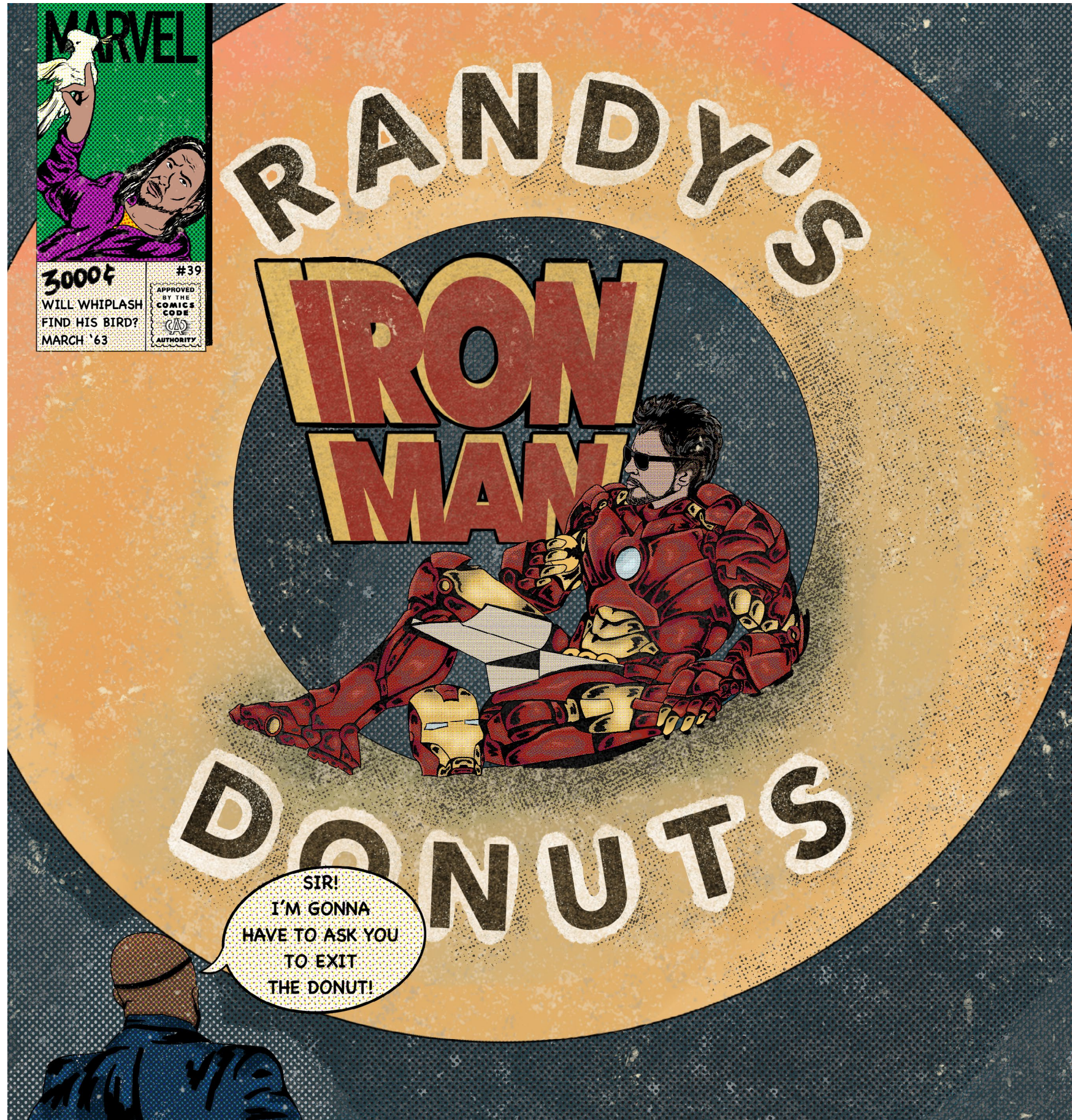
## SILKSCREEN PRINTING

Silkscreen or Screen printing gets its name from the wooden frame that is used in the process. This frame is called a screen. Since this technique was initially used to print on silk cloth, the process came to be known as Silkscreen. With time, Silkscreen was used to print on other surfaces like canvas, paper and the like. This specialised process uses a wooden screen, a squeegee to spread the ink evenly and photo-emulsion of the design. Since the ink used in Silkscreen printing is quite thick, the resulting images almost have an embossed look. Alfred Hitchcock's film Vertigo had the main poster made in Silkscreen, designed by the famous Saul Bass.

# LETTERPRESS PRINTING

Letterpress is a relief printing method that uses letters carved in wood or metal to make direct impressions on the surface material. Letter blocks are used to spell the words you need, apply the ink, make an impression and Bob's your uncle. Posters and advertisements from the late 19th and 20th centuries mostly used this technique.





## HALFTONE REPOGRAPHIC PRINTING

If you are from the generation that read comicbooks and newspapers before digital printing, you probably saw halftone repographic prints. Printing machines assigned a colour value for each dot or pixel.

Together, these dots formed one cohesive image. Mostly in CMYK, the result gave these images a distinct pixelated pattern.



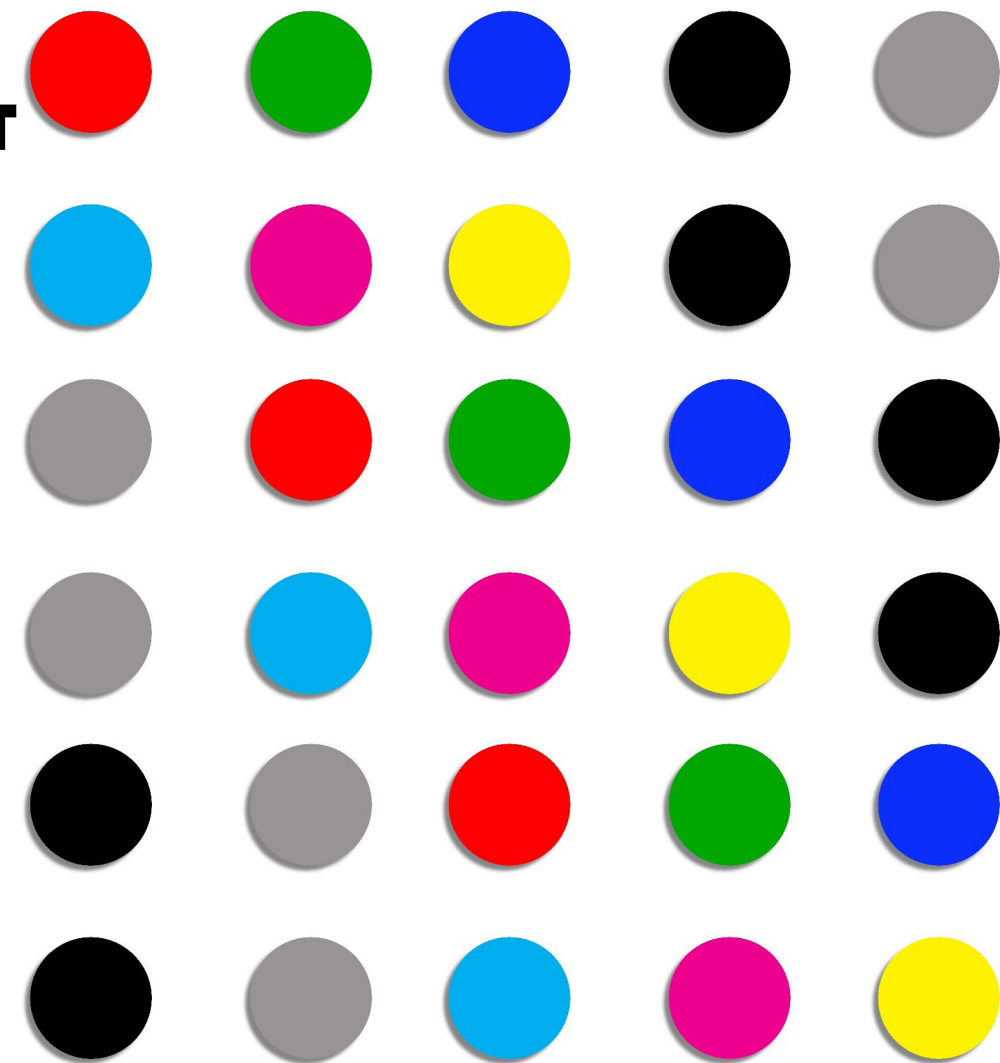


## DIGITAL PRINTING

Inkjet, Deskjet, laser printing and other terms are used to describe modern printers that are entirely digital. Digital printers are almost always connected to a computer and rely on chip technology to analyse the colours for a seamless transfer of ink. Digital printing is the height of 2D printing technology. However, the quirks and characteristics of the artworks from analogue printing still have takers. Getting your hands on a Silkscreen print or an old comic book with halftone images still makes print enthusiasts smile.

## PIXELS & PRINT PROFILES

The better the pixel resolution, the easier it is for a printer to decipher the image. This gives you a clearer print with perfect colour gradients, light variations and crisp lines. When a designer sets their canvas to a good DPI or PPI quality, they are essentially setting the print quality even before they start making the design. When they set a colour profile to CMYK, sRGB, Pantone or any of the sort, they already set the colour translation. Similarly, picking a type of paper, its GSM thickness, paper texture, gloss, matte, metallic finish etc. will decide the “feel” of the final print outcome.



## 3D PRINTING

3-Dimensional printing takes the design to a whole new level. If you thought Star Trek's food replicator was futuristic, think about how 3D printing a steak is already a reality. Designed a brilliant pair of sneakers? Draw it in a CAD 3D app, make it in a 3D printer and wear it! Broke your frying pan handle? Design a new one, 3D print it and fix your pan. Even parts for rockets and satellites are 3D printed with ease. Every component no longer needs a specific machine to produce. A simple 3D printer will do. Today 3D printing is an integral part of product design, engineering design and even food printing.



## THE FUTURE OF PRINTING

What's next in printing? Material design combines the knowledge of chemistry and design to create new component materials. If material for 3D printing is further developed, Star Trek's food replicators might soon be in our kitchens right by the microwave.

Why just food? 3D-printed houses and even clothes are common across the world. The three basic human needs for survival, food, clothing and shelter, could be satisfied through a printer.



"God suffers in the multitude of souls whom his word cannot reach. Religious truth is imprisoned in a small number of manuscript books, which confine instead of spread the public treasure. Let us break the seal which seals up holy things and give wings to truth in order that she may win every soul that comes into the world by her word no longer written at great expense by hands easily palsied, but multiplied like the wind by an untiring machine."

## Johannes Gutenberg

While the motivation behind Gutenberg's invention was his Christian conviction, there is no denying that every written idea (not just religious) got its set of wings with his creation of the press. Because honestly, where would the human race be without print?

# SENSEI SPEAKS

## Did You Know?

- Chris Hull is the inventor of Stereolithography, commonly known as 3D Printing. He patented it in 2014.
- While Gutenberg invented the mechanical printing press in 1436, the oldest known printed book is the Buddhist Diamond-Sutra from 869 AD.
- The Incredible Hulk was supposed to be grey. Because of a printing error early copies of the comic had the angry scientist in different colours. Stan Lee loved the copies where Banner turned green and decided to go with it!

Image: Linocut print pattern design from lino stamp on page 7

