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2 strip technicolor examples

When my mother was about six years old she was taken to see the newly released movie The Wizard Of Oz. Until the day she died she never forgot the awe and amazement she experienced when Dorothy opened the front door of her just-landed Kansas farmhouse to the most splendid display of color she had ever seen in her life. Mom always had we kids watch the movie with her whenever it was on TV and I too fell victim to the film's charms. Even through a television screen I could tell that the color was different from what I was used to. I eventually learned that the brilliant color in those old movies was due to a unique and long-obsolete process called Technicolor. What I did not learn until recently was that those Technicolor movies were actually filmed in black & white. Maybe you didn't know that either. And the way they did it is fascinating. If you are a fan of old movies you have surely seen at least one of them that was filmed in glorious Technicolor. Technicolor was not just a brand name (though it was certainly that as well) but an entire company built on a truly unique process for putting brilliant colors on a motion picture screen. And I do mean brilliant. The process brought a vivid, highly saturated color that was better than lifelike. Even though the process was commercially viable for a relatively short time, you can be sure that any Hollywood production with a really big budget would feature the eye candy that only Technicolor could provide. When most of us think of "Technicolor" we think of the perfected process that coincided with the golden age of Hollywood, but the process actually got started around World War I. Herbert Kalmus and Daniel Comstock were both 1904 M.I.T. graduates and each received a PhD in Europe two years later. After spending some time teaching at M.I.T., they started an R&D firm in 1912. After being asked to evaluate an inventor's "flicker-free" motion picture system they got interested in the technical aspects of film. People had experimented with ways to make color motion pictures since the earliest days of film. Like this example by English filmmaker George Albert Smith from 1908 in a short film called A Visit To The Seaside, which used a process he called Kinemacolor. But the process, which involved rotating wheels with red and green color filters in both the camera and in the projector, was complex and saw no more than modest application in the years before WWI. The earliest known use of Kalmus' and Comstock's Technicolor process (called Process 1) was in 1917 for a film that no longer exists, but for a few isolated frames - The Gulf Between. Instead of Smith's spinning filters, Technicolor's innovation was a camera that split an image in two, with one image run through a red filter and the other through a blue-green one. Both images went onto a single strip of black & white film which ran at double speed so that the two images could be exposed one after the other, in a 1-2-1-2 sequence. Special projection equipment was required, which ran the print back through red and blue-green lenses which displayed as an approximation of the actual color scene. The film was only shown in four eastern cities, mostly as an exhibition of the process rather than as entertainment. The first commercially made color film was also produced and made by the Technicolor company - The Toll Of The Sea in 1922. This film, an adaptation of Madam Butterfly, provided the first leading role for groundbreaking Asian actress Anna May Wong, who was just seventeen. This film employed an improved Technicolor process (Process 2) which put the color into the print instead of through a projector's colored lenses, thus compatible with standard projection equipment. How did they do this with black and white film? This is the part I find really cool. Depiction of the Technicolor Process 2 system. (a) mirror image red and green negatives; (b) red record print; (c) green record print; (d) print of red record after cyan dye; (e) print of green record after magenta dye; (f) final print after the cyan and magenta dyed prints have been glued together, back to back. As before, the lens split to put two images on a strip of film in the same 1-2-1-2 sequence. One image came through a red filter and the other through a green filter. The film shot through the red filter had most of the green filtered out, recording mostly the red parts of the image. The part shot through the green filter did the opposite, resulting in a print which favored the green parts of the image. Each negative was developed into print on a film specially designed to soak up dyes. Each of the prints was dyed in the color opposite of what was recorded on the film - the red information print was soaked in a cyan (blue-green) dye and the green information print was dyed magenta (green's opposite). Both prints were then glued together and - COLOR! More or less. Technical Dive - take a breath.] Why opposite colors? Remember that white light is the total color spectrum, so the idea is to block or absorb certain parts of the spectrum opposite of the ones you want to show. They call this "subtractive color." See how on the red-filtered black & white print the red dress is quite pale? This is because red colors were highly exposed on the film while green ones (like the mountain) got low exposure and are dark. The cyan tint absorbs anti-red, thus making the red dress appear red on the screen. Ditto the way the magenta tint absorbs anti-green, thus allowing the green mountains and light green-ish sky to come through. If this were done to identical black & white prints, the cyan and magenta would cancel each other out. But with the differently filtered prints that red dress allows lots of red light to get through through red half of the combined print while little or no green light makes it through that part of the green half. So on the dress, red wins. [End Technical Dive. Breathe deeply a couple of times and take a drink of water so we can continue.] Several films used this process in at least parts, one of the most famous being in the 1925 feature The Phantom Of The Opera, starting Lon Chaney. There were problems, however. First, there was a teeny depth difference between the two images. Worse was the film's tendency to "cup" after multiple showings. Because there were two strips, the cupping randomly switched from inward to outward and back, which caused endless headaches for projectionists trying to keep things from going ablor on the screen. The final two-color version (Process 3) hit in 1928 with The Viking. Tangent alert - most if not all of these early Technicolor films are available for the watching on YouTube. I watched bits of them and they are fascinating. As objects of wonder if not as movies. End tangent. Anyway, Process 3 was the version I encountered in researching a piece on musicians Joe Venuti and Eddie Lang. They had a short feature segment in the 1930 film, The King Of Jazz. This was a budget-busting failure of a musical review on film. I watched the whole thing and it is an acquired taste, but compelling nonetheless. This restored frame gives you a look at a 28 year old Bing Crosby, long before he was crooning about a White Christmas. This process got the print onto a single strip by pressurized dying of two different strips on special film that absorbed dye at different rates based on the lightness or darkness of the image and then pressing this dyed "matrix" film onto a print film, one after the other. This process saw some modest success, but did not really get more people into theater seats. Have you noticed it yet? That all of the vintage color shots we have seen to this point are great in the areas of magenta-red and cyan-green, and pretty good with skin tones too. However, there is nary a hint of blue or yellow to be seen in any of them. This was, of course, the big drawback to this two-color system - they simply could not get the entire spectrum covered with two colors. You may not be surprised that not a lot of these two-color films survive in their color versions. Many of the negatives of this era were dumped along the way after B&W prints were made for television. Technicolor finally hit the big time with the "three strip" process in the early 1930's. Complex (and horrifically expensive) Technicolor cameras fed three strips of b&w film through at a time. With three strips they could split the image to end up with a red record, green record and (finally) a blue record. The green worked as before, but the third strip was a blue-sensitive film that doubled up with the red strip, sharing the image that came through a magenta filter (which allowed both red and blue light to pass through). Now each strip captured about 1/3 of the spectrum. Those 3 oddly shaded black & white negatives were then each printed, as before, onto a special "matrix" film which would attract dye only in the tinted areas. Each matrix strip was coated with cyan, magenta or yellow dye and those dyed strips of anti-red, anti-blue and anti-green were one at a time pressed into a print film specially treated to suck up and hold the dyes. And voila - three strips of black & white film, each dyed a single color, resulted in the most luxurious full-color movies ever made! The very first film using the 3 strip Technicolor process was the 1932 Walt Disney Silly Symphonies cartoon Flowers And Trees. It must have been pretty enthralling back in the day, as it won the first Oscar for an animated short. Just look at those yellow flowers and that blue sky! Disney was so high on the process he negotiated a three year deal for exclusive rights to the process. There would not be a "regular" movie made entirely with three-strip Technicolor until the 1935 film Becky Sharp - which I have never seen. There was actually an earlier live-action short from Technicolor's own Pioneer Pictures studio (in partnership with RKO Radio Pictures), 1934's La Cucaracha. It was clear that the film's makers were working on finding the right touch for best use of the system - the extremely slow film (ASA 5) required LOTS of light and this first attempt showed the system's weaknesses in low light conditions. How much light was necessary? It was reported that during the filming of The Wizard Of Oz in 1939, the sound stages reached temperatures of 100 degrees F due to the overwhelming lighting demanded by the Technicolor cameras. I only sample-watched LaCucaracha, and there was an odd reliance on red and green in some of the costumes - odd because those were the colors the public was already used to seeing. But there were scenes where the technology was allowed to strut its stuff, like the one above. The picture won an Oscar in 1935 for best comedy short, which very likely made the business case for a process that could quadruple the cost of making a black and white film. But sometimes the expense was well worth it. If you have ever seen the epic 1939 film Gone With The Wind, you no doubt remember the fire scene. The movie takes place before, during and after the Civil War and one scene involved the wartime burning of Atlanta. The stagehands had either built or re-used a large part of the MGM studio's backlot as an antebellum Atlanta. Then filmmakers burned the whole thing down in spectacular fashion. Technicolor cameras were owned by the Technicolor company (which controlled its process from beginning to end) and leased to the studios by the day. All of creation contained only seven of those cameras and producer David O. Selznik made arrangements for all seven of them to be locked and loaded for what may still be the largest fire scene ever filmed, with real fire so fierce that nearby residents' jammed phone lines thinking that the film studio was ablaze. He knew that he would never get a chance to go back for a re-shoot if anything was unsatisfactory, so using every extant Technicolor camera was his way of not taking any chances. The result was a genuine spectacle. So, if Technicolor was so great, what killed it off? The combination of eye-popping expense (triple the film, rented cameras with mandatory "color consultants" to insure that the process was not being abused, and expensive dye processing in dedicated Technicolor plants) was a big factor. The other was Eastman Kodak's improved (and much less expensive) Eastmancolor films which could capture all three colors in the negative (and through a standard, studio-owned camera). As in most cases of obsolescence, it all came down to money. The 1955 Jane Russell musical Fox Fire was the last picture in beginning-to-end Technicolor. Technicolor continued to produce dye-printed copies of "regular" color films until the last US dye-printing plant was closed not long after the 1974 release of The Godfather Part II - which was the last non-American feature to have used the dye-transfer process for making theater prints. More screens and the need for more prints in less time for less cost doomed Kalmus' aging concept - it has been reported that one print took one technician an entire day to produce. The last Italian dye-printing equipment was used for a 1977 Italian horror film, Suspiria. There was a brief attempt made to revive dye printing in the late 1990s but it was over again within a few years. The last of Technicolor's dye-printing equipment went from Britain to China but it was gone by the early 2000s as well. The Technicolor company still exists, theoretically at least, after a purchase by the French company Thomson. Why does any of this matter? It doesn't, really. But it does explain "the look" of some of those classic big-budget products of the old Hollywood studio system, a rich, luxurious and vibrant appearance that has never been duplicated. And for those of us who enjoy those decadently rich colors, it is comforting that film preservationists consider a Technicolor dyed-print to be of archival quality, and that the black & white negatives will last virtually forever if stored in decent conditions. As opposed to "normal" post-Technicolor films which can often look as bad today as those from the beginning of the color era. The only real answer, I suppose, is that some things are just cool. Whether you are a movie-nerd like me or not. *** For a much better explanation of how the two and three color processes actually work, go to this entry at The Widescreen Museum. ** Image credits: Opening photo - Frame from the 1939 MGM picture The Wizard Of Oz, from the Des Moines art Center Frame from the 1952 MGM film Singin' In The Rain - from the website nextprojection.com Frame from the trailer for the 1953 Twentieth Century-Fox film Gentlemen Prefer Blondes - in the public domain GIF clip from George Albert Smith's 1908 film "A Trip To The Seaside" - from Medium.com Surviving frame from The Gulf Between, 1917 via IMDb.com Still from the Technicolor film The Toll Of The Sea, 1922, from the website of film historian J B Kaufman (jbkaufman.com). Technicolor 2 strip example - from historyoftech.unmwblogs.org Frame from a 1929 reissue of the 1925 Universal film The Phantom Of The Opera - Wikimedia Commons, film in the public domain Screenshot from the 1928 MGM film The Viking, from a DVD copy offered for sale at Bonanza.com Screenshot from the 1930 Universal film The King Of Jazz - from the YouTube page of HeathCliff Rothman Blended color wheel - wikimedia commons, in the public domain Technicolor 3 strip camera diagram - Wikimedia commons. Frame from the 1932 Walt Disney animated short Flowers And Trees, from IMDb.com Image of a promotional poster for the 1934 Pioneer Pictures/RKO Radio Pictures release La Cucaracha, via Wikipedia - in the public domain due to a non-renewed copyright Frame from La Cucaracha, from the website of film historian J B Kaufman (jbkaufman.com). Frame from the 1955 Universal film Fox Fire from the website of filmalert101.blogspot.com Frame from the 1939 MGM picture The Wizard Of Oz, via the web page mutually.com Share -- copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt -- remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution -- You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike -- If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions -- You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Published 2016-01-23T21:23:32.205Z The Technicolor process was invented in 1916, and went through several changes in a two-color (or popularly called, two-strip) form from then until the first full Technicolor feature, Walt Disney's 'Flowers and Trees', in 1932.This list features films which either have a two-strip sequence, or the full film is made in two-color Technicolor. If it isn't on here, I probably haven't seen it. (A handful of the films listed here have lost their color bit over the years, but as The Lottery Bride's end sequence turned up relatively recently, we can always hope).For me, this primitive color process is exciting to watch, it feels as if the black and white comes to life and we were seeing a flicker from the long past (it is also the only footage of some stars in color, e.g. Jean Harlow and John Gilbert). I love watching films in this weird pinky green wash, far removed from the vibrancy of the Technicolor we knew and loved for so many years. Block or Report Read notes If you start studying film history, you're going to get lists of companies and processes that created the industry we know and love today. One of those processes is Technicolor. Well, it's technically upwards of five different processes, but we'll get to that. So, what does that even mean? And what was its impact on early Hollywood? There's a whole lot to unpack. Today, we're going to define the Technicolor process, talk about its history, and look at a few examples across cinema. Let's dive in. The term "Technicolor" actually refers to a bunch of motion picture processes developed by the Technicolor Motion Picture Corporation throughout the early 20th century. The Wizard of Ozvia MGMTechnicolor was more advanced than other attempts at color at the time. It also kept advancing from its onset, so it was always viewed as cutting edge. At the start, this tech was expensive, but there was a natural draw for color from audiences. People saw it as the future and saw it as a way to have upfront costs that could pay off at the box office later. There's an article from Forbes in 1934 where they glowingly talk about the company, so many people were extremely excited about what it offered. When Technicolor had success with movies like The Wizard of Oz and Gone With the Wind, Hollywood embraced it even further. These movies were extremely profitable and set a standard for how the public wanted to see color. After that, it took off. The Technicolor company solidified their position in Hollywood by providing what became the standard for how color movies should look. It was characterized by bold colors and a heightened sense of visual spectacle.It also allowed filmmakers to emphasize emotions, themes, create symbolic meanings, and enhance the overall narrative impact of their films.Here's a few other characteristics: Vibrant Colors: Technicolor, particularly the three-strip process, was renowned for its rich, saturated colors, which were far more vivid and stable than earlier color processes.Increased Luminosity: Technicolor films often exhibited a heightened sense of luminosity, with brighter whites and a radiant glow that further enhanced the visual impact.Complex Technology: The process involved specialized cameras, processing labs, and skilled technicians, making it expensive and technically demanding.So, to understand Technicolor, you just need to know how they were advancing the look and feel of movies on screen. First, they were always a company trying to bring color to the big screen. That started at the very advent of Hollywood. Early Technicolor (Additive Systems)Process 1 (1916-1917): This was an additive system that used a prism beam-splitter to expose two separate films at the same time. One was filtered for red and the other for green. These were then projected together to create a color image. Process 2 (1922-1928): This subtractive process used a special camera to capture two color negatives (red and green) on separate films. These negatives were then printed onto a single strip of film. Process 3 (1928-1932): This was a refinement of Process 2 that used dye to chemically color two images onto a single strip of film.Examples of TechnicolorThe Toll of the Sea (1922)/The Black Pirate (1926)/Process 4 (1932-1955): This was the most famous and successful Technicolor process, and probably what you think of when you think about Technicolor. It used a beam-splitting camera to expose three strips of black and white film, each filtered to capture a different primary color (red, green, and blue). These separate films were then processed and combined to create a single, full-color image.The three-strip system represented a major advancement in filmmaking technology. It brought a new level of realism and beauty to the screen. And it shaped the way audiences experienced film.Examples of Three-Strip TechnicolorThe Adventures of Robin Hood (1938)Gone with the Wind (1939)The Wizard of Oz (1939)Fantasia (1940)Leave Her to Heaven (1945)Singin' in the Rain (1952)Barry Lyndonvia Criterion Pictures/Process 5 (1955-1974): This process was developed in response to the rise of Eastmancolor. It allowed Technicolor to create prints from Eastmancolor negatives, offering a cheaper solution.Examples of Later Technicolor: Vertigo (1958)Ben-Hur (1959)The Godfather Part II (1974)Barry Lyndon (1975)Summing Up Technicolor Filmmaking Now that you know all about Technicolor, it's time to go back and rewatch some of these old movies. Try to watch a bunch from different periods so you can see how the processes evolved and how the images brightened and took shape on the screen. I love seeing these old movies and being inspired by what they could accomplish with different hues and exposures. It challenges me for whatever comes next. I'd love to hear how it challenges you. Let us know your favorite technicolor movie in the comments! Did you know that development of Technicolor began in the early 20th century? It took some time for the developers to iron out the kinks, but by the time they did, a new vision of motion pictures emerged.Let's check out a great video that shows us how Technicolor was founded and how it was used by directors.Now that we've refreshed our memory with a look at some Technicolor examples, let's just jump into a Technicolor definition. Technicolor is a series of processes used to first produce color in motion pictures. From 1916 to 1932, the Technicolor company tinkered with its system so that the process of coloring films became accessible to Hollywood. Today, Technicolor is perhaps more known for the end result of the coloring process than the process itself. Technicolor films are known for their bright, bold, saturated colors.Process 1 (1916-1917):An additive prism beam-splitter was used to expose one red and one green filtered image onto a single strip of film.Process 3 (1928-1932):A two-color process that used dye imbibition to chemically color two complementary images onto a single strip of film. Process 4 (1932-1952): A three-color process that used a split-cube prism to expose three independent strips of film that would capture either red, green or blue.When did color movies come out? When did movies get color? These are the questions that many of us asked as kids, after seeing our first black and white movie.Technically speaking, the first movie in color, Cupid Angling, came out in 1918. But the process used to colorize the picture, the Douglass natural color process, was incredibly hard to pull off.It took a long time for Technicolor to settle on the best process for getting the full spectrum of color in its pictures. One reason for this is that the company was using a two color system in their cameras which only produced one strip of negatives. Looking back, it's pretty remarkable that this system worked at all.In this next video, we'll see how Technicolor used processes 1-3 to achieve revolutionary, but painstaking results.It's amazing how many films from this era have been lost to time. Although it is great to see that some of them are being restored.If you're still wondering about how Technicolor used the dye-transfer process to color its films, check out this next video:Although the dye-transfer process was incredible for its time, it proved to be a logistical nightmare. If Technicolor was going to move forward, it was clear it needed a new system.By the early 1930's, Technicolor developed a brand-new camera, which utilized a three-color system (otherwise known as three strip Technicolor) rather than a two-color system. And instead of recording only one negative, this new camera recorded three. Each of the three negatives were responsible for either red, blue, or green.Still confused? Don't worry, this next video does a great job of showing us how the process was done:The three strip process required a gargantuan amount of work from the Pre-Production process all the way through Post-Production. Just think about how big that "blimp" camera was! It's easy to forget just how different the filmmaking process was then compared to now.Today, everybody with a smartphone has an HD camera at their disposal. It's entirely mobile, operable, and easy to use -- meanwhile the "blimp" required an insane amount of knowledge and technical skill to operate. But by this point, and for the first time, Technicolor filmmaking was made widely possible. The first Technicolor film shot entirely in Technicolor's three color process was Becky Sharp in 1935. At the time, this was viewed as a quantum leap forward for cinema. From 1920 to 1935, the cinema industry had gone through enormous change, institutionally (from Pre-Code to Hays-code), structurally (silent to "talkies"), and technologically (black and white to color).But although many knew about the changes, few had seen them all put together in a single picture.There were two movies that changed everything for color in film and the world of animation: these were Snow White and the Seven Dwarfs and The Wizard of Oz. It's no secret that Walt Disney put his career on the line with his remake of the famed Brothers Grimm fairytale.Snow White wasn't the first Technicolor film, but it's largely synonymous with the company's foray into the limelight. It was also the first full-length cel-animated film and first animated feature in the English language.This video shows how Disney pulled off a miracle through technical expertise:There's no doubt about it, Snow White and the Seven Dwarfs is a masterpiece of its time and one of the best animated movies of all time. But many film-goers were still curious to see how three color Technicolor would look in live-action. Enter The Wizard of Oz -- perhaps the most famous Technicolor movie of all time.The Wizard of Oz doesn't start in color though. All of the scenes in Kansas are shot in sepia. But when Dorothy is whisked into the land of Oz, the visuals saturate with color, which brings us with her into another world. Let's remind ourselves of how it all came together. For one, this was the first time they had seen a film in color. It's easy to forget just how difficult the process of coloring films was. A lot of studios didn't think it was worth the time or energy.But after The Wizard of Oz, things started to change.Not only is The Wizard of Oz enshrined in the annals of cinema history for its production design, but for its technical brilliance as well. The visuals are perhaps more immersive and more staggering than any of its contemporaries.However, it's no secret that they came at a cost. At the time, Technicolor cameras required incredibly bright lights to work as intended. Numerous reports say that throughout filming, the sound stage was hotter than 100°F. On top of that, many of the actors were in elaborate costumes, especially Ray Bolger (The Scarecrow), Bert Lahr (The Cowardly Lion), and Jack Haley (The Tin Man). It got so hot in those costumes that the crew feared for their safety. Fortunately, the cast and crew made it through production mostly unscathed. But many were left traumatized or sick -- including the original Tin Man actor Buddy Ebsen, who was poisoned from the silver make-up. After the release of The Wizard of Oz, studios around the world rushed to get their hands on Technicolor. During the 1940s, hundreds of Technicolor films were made -- and people loved them.However, the difficulty of producing them continued to annoy studios and filmmakers. By 1950, there were more than a few competitors carving out Technicolor's market share. Films were starting to be shot in widescreen through processes like Cinemascope and VistaVision. If Technicolor was going to survive, it needed to adapt.Enter Technirama: an anamorphic process with an aspect ratio of 2.35:1.This next video shows us how the Technirama process was done and how it was different from its competitors:Technirama worked for a time, but it didn't solve the challenges that the dye-transfer process presented. As the years went by, fewer and fewer movies used Technicolor. Two of the last movies to use the process were The Godfather and The Godfather: Part II -- two of the best mafia movies of all-time.Here's director Francis Ford Coppola talking about his perspective on Technicolor. He reflects on what it was like to work with the company on films like Apocalypse Now and their instrumental aid in the restoration of his film The Cotton Club. So, what is Technicolor? To Coppola, "Technicolor was synonymous with quality." The aesthetic of Technicolor is one of the most revered in cinema history. Coincidentally, Technicolor faded away around the same time as the Hollywood New Wave did, which was a movement Coppola helped start.In the end, Technicolor simply became a relic of another age. Today, dozens of Technicolor cameras still exist, dormant and rusty from lack of use. Most of the dye-transfer plants throughout the world have been shut down. Only a few still exist for archival purposes. In the 21st century, color in film typically falls under the domain of color grading and color correction.Perhaps it's nostalgia, perhaps it's the colors, perhaps it's the films themselves. Whatever it is, this much remains certain: cinema wouldn't be what it is today without Technicolor.You may not be able to make a film in Technicolor anymore, but that doesn't mean that there aren't tools available to make great use of color in your films. Today, it's easier than ever before to put your signature touch on the visuals. In this article, we look at 50+ examples of color palettes with films from David Fincher, Wes Anderson, and more.Up Next: How to Use Color --