

A Beginner's Guide to Film Photography

2021 Edition

48 min read by Dmitri, Betty, Joy Celine Asto, and Take Kayo 嘉陽宗文.



Shooting analogue cameras is not difficult, as long as you have a solid idea of how to do it right, which this guide should aptly provide.

If you've already got your film and camera, scroll down to "**Photography 101**," a four-part sub-series about key photographic concepts. If you are confident in your skills or just want to get straight to shooting, scroll to "**Buying a film camera**," "**Buying film**," or "**Making photographs**" below.

No matter if you are a beginner or a pro film photographer, there may be something here worth learning.

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I made this guide is free to read, download, and print to help new and established photographers get started with this fantastically expressive medium. However, it takes hundreds of hours to write, edit, and maintain this type of content, as well as the website that hosts it.

If you'd like to contribute to these efforts, you can **support Analog.Cafe** via www.buymeacoffee.com/dmitrizzle — all it takes is a casual \$3-15.

Thank you, and enjoy the read!

— Dmitri, *Managing Editor*.

Defining film photography.

Film photography is the method and the tools most popular amongst amateur and professional photographers up until its peak in 2003 when 960 million rolls were sold. Today it is still used by millions of artists and hobbyists who appreciate or feel fascinated by the process and the results.



Two half-frame exposures from the hand-reversed redscale film on Lomography Diana Mini.

Film itself, in the context of photography, is a thin strip of plastic, covered with an emulsion of silver halide crystals suspended in a gelatine base. The chemistry is highly sensitive to light; it has to be handled in complete darkness.

To yield images, the film needs to be washed in additional chemicals; typically developer, bleach, and fixer. Which then produces a **negative**, meaning that blacks are now white and greens are red. For colour film, this process is referred to as **C-41**. There are also ways to produce positive images, **E6**, **instant film**, **monochrome** film, and few other alternative methods, including Caffenol, Beerol, and Piller Cuveeol.

Film photographs can have a distinct look. When the medium is pushed to its limit, altered, aged, or old chemistry is used, it may appear extra grainy, produce colour casts, appear with torn edges, or have unusually low or high contrast levels.

👉 **Further reading:** [“How to Make Redscale Film From Any Colour 35mm Roll.”](#)

Instagram is a fantastic example of the mass appeal for analogue photography's inherent limitations.



A photograph that was taken with medium format Lomography Holga 120 TLR camera and optically printed on photographic paper.

The app's well-engineered filters tool has been instrumental to the company's success. Those visual effects were modelled to simulate the whacky, fuzzy, colourful images that a cheap plastic film camera produced for its founder, Kevin Systrom.

Instagram filters were built to provide a way to smooth out images taken by people with little or no understanding/interest in photographic principles. The effects add depth and interest to the crispy-clear digital images of often badly-lit subjects.

Instagram, in its earlier iteration, also required all photographs to be cropped into a square shape. That aspect ratio is a direct descendant of Kevin's **Holga**, a 6×6 medium-format plastic toy camera. Whether on purpose or as a lucky side-effect, forcing users to crop their images also made them feel more intentional and interesting.

Why shoot film in 2020?

Film photography is more than just the grain. It is an experience. From acquiring the first film camera to seeing the first photograph, there are fundamental differences in how things are done as compared to digital photography.

There is no display at the back of a camera, no way to connect it to a computer. Because film often needs to be processed by a lab, most of the time you'll need to wait for hours, days, or weeks until you see your photograph. To a newcomer, the wait may seem inefficient and nerve-wracking. But for those who shoot it habitually, this makes for a very special experience — kind of like opening a time capsule.

👉 **Further reading:** *"Why do you prefer photographs taken on film over digital shots?"* — [Quora](#).

There's another type of film that can produce a printed picture instantly, faster than any digital camera. It's called instant film and is made today by Fuji under the brand Fuji Instax and Polaroid, formerly The Impossible Project.

Because film cameras are considered obsolete by most people, they may be bought on the cheap. The medium is versatile enough to range in results from the strange, distorted images that inspired Instagram filters to remarkably precise representations of reality, virtually indistinguishable from digital photography.

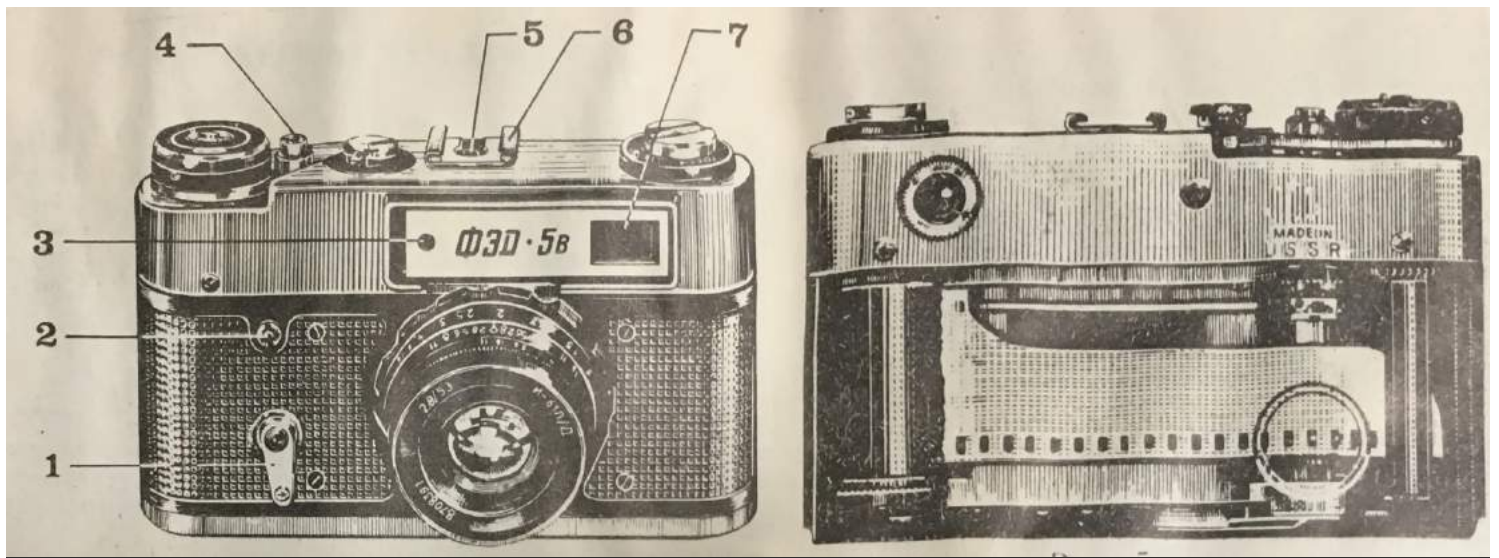
👉 **Further reading:** *"Voigtländer Vitessa L: German Precision Optics in a Foldable Rangefinder Camera."*

Adding to the experience, it is still quite possible to find and buy cameras that are over 100 years old and still functioning. Many of which may look extremely novel and inspire admiration.

Film photography is surprisingly appropriate in 2021. Along with the tremendous advantages of modern digital technology come challenges to our privacy, health, and social interactions. This is evident with the rise of privacy tools like Duck Duck Go, screen time reports on iOS devices, and the increasing pressure on companies like Facebook. Going temporarily offline and avoiding these issues is full of benefits. And film photography is a great way to do it.

Not only can you wander outside with a fully mechanical camera that requires no batteries or internet connection — you can even make your own out of a cardboard box or a tin.

👉 **Further reading:** *"Building an Instax Pinhole Camera: In a Chocolate Tin."*



A brief history of film photography.

Photography was invented in the early nineteenth century. Optic science has already been in development for hundreds of years but only then did the technology was finally able to “freeze” or “fix” an image. At that time, most of it was done with cameras exposing metal or glass plates covered with chemicals, with the first flexible film as we know it being produced in 1889 by Kodak.



Still life with plaster casts, made by Daguerre in 1837, the earliest reliably dated daguerreotype
— Wikipedia.

Early photographers struggled to be recognized as artists, which in turn gave birth to **pictorialism**: an attempt to replicate the “organic” quality of a painted image with effects and processes that made photographs look like drawings or paintings.

There were, however, photographers who have fully embraced the power of chemical imaging. **Ansel Adams**, one of the most recognizable names in the photographic world was one of those people. He openly criticized pictorialism. He also promoted *hyper-realism* by altering his photographs to often have higher contrast or remodelled lighting.

Adams is particularly famous for sweeping landscape photography which borrowed its genre from painters and artists of the time. Portrait, architectural, fashion, wildlife, and still-life photography did the same, while genres like street, areal, and experimental photography were born out of the medium’s unique properties. Today we have new names meaning roughly the same things: drone (areal), selfie (portrait), travel (landscape & street), and food (still-life) photography.

World War II has changed our society and photography along with it. The important role in the conflict documentation has given it a prominent place of respect amongst the military,

scientific, and art communities. Some of the most remarkable work of the time was done by **Tony Vaccaro** on his Argus C3 film camera.

In the 1970s, the first digital camera was created by Kodak, although the invention hasn't taken off until the early 2000s when it ultimately led the "digital revolution." Unfortunately, digital imaging caused Kodak's eventual bankruptcy as it was not available to keep up with the technology that the consumer demanded and other brands like Canon and Nikon have fully embraced.

Since film photography's near demise, technology like autofocus and autoexposure, originally invented for film cameras, migrated onto digital bodies. We continued to improve our cameras with image stabilization, better sensors, and ultra-compact design. The software has also solidified its influence on photography. However, it is worth knowing that the lens sharpness and image resolution had no overly significant improvements since the 1970s. Today's optics are only marginally sharper, with better correction for distortion, aberration, and camera shake but less control when it comes to focus and aperture as automation has overtaken those controls.

Printed or projected on a screen, digital and film photographs are often indistinguishable in terms of sharpness and quality. Given that the analogue image was shot on a modern colour emulsion, of course.



This photograph was taken on a sixty-two-year-old 35mm film camera, Voigtländer Vitessa L III, with Fujichrome Velvia 100.

The return of film photography.

It never left, actually.

Although companies like Kodak, Fuji, and Polaroid have lost tremendous amounts of capital when digital photography began replacing film, they never ceased manufacturing.

Kodak and Fuji have significantly scaled back their operations. Polaroid, a famous maker of instant cameras, became a licensing and marketing brand with its last factory being bought by a small company called Impossible Project. That company later bought the original Polaroid name and rebranded itself as **Polaroid Originals**.

👉 **Further reading:** “Strictly analogue: Polaroid's past, present and future – a photo essay” – [The Guardian](#).

As the race to switch over to digital intensified in the 2010s, a young business continued to grow as a proponent of the analogue craft. **Lomography** sold cheap plastic film cameras as fun toys for creative types. The lo-fi aesthetic had inspired an army of dedicated photographers who, in no small part, have become a solid support for the struggling film industry of the time.

Iford, a British company known for specializing in black and white film had a couple of changes in management. Remarkably, they have survived in a world where monochrome colour images have become long “obsolete.”

Kodak in 2019 has finally hindered the financial downward spiral. The interest in film photography began to slowly resuscitate. In 2018 they have brought back to production two new-old films: T-Max P3200 and Ektachrome E100.

Fujifilm lost the least during the digital boom. Their CEO managed to turn the company around by repurposing the company’s chemical expertise into a line of makeup products. Photography had stayed with Fuji in the form of digital cameras, famously shaped after the *rangefinder*-type film counterparts. However, for a business as large and as focused on the future as Fuji, producing film has apparently become a hindrance. The company has discontinued a number of film in the 2010s though they did manage to bring one stock back from the dead: Neopan Acros II.

👉 **Further reading:** “June ‘19 Community Letter: The Return of Fuji.”



Leica Camera, a premium manufacturer, famous for quality and preference among professionals has never stopped producing film cameras. The company, living on the opposite market side of Lomography is doing OK.

As the keystone film companies continue to struggle and adapt to the new market, dozens of small businesses are already starting to form to satisfy the renewed consumer interest. **Japan Camera Hunter** has made it their business to resell high-value classic film cameras. Bellamy Hunt, its founder, also sells his own brand of film and disposable cameras.

MiNT is in the business of selling modified Polaroid SX-70 cameras and new Instax-based photography products. Gary Ho's team gives the incredible forty-year-old machines new abilities, such as being able to shoot more than one film speed and extended manual controls. MiNT is also working with Rollei, a brand known for their premium mid-century TLR cameras, to produce Rolleiflex Instant Kamera. *Kamera* is the next iteration in their InstaFlex series.

CineStill created a new product for film photographers by repurposing Kodak's top-notch movie picture emulsion. Kodak Vision 3 500T Color Negative Film 5219/7219, is an advanced, modern photochemical technology used on the sets of *The Avengers*, *The Walking Dead*, and

Star Wars. Found by Brothers Wright, the company modifies the film for development at most photo labs and packages it into 35mm and medium-format canisters.

Film Ferrania, under new management, has been working for the past five years on restarting manufacturing at its Italian factory. Unfortunately, the company has been plagued with issues, crippling production efforts.

Film Washi produces “handcrafted films,” including a special paper-based film. **Dubble Film** sells pre-exposed film that prints vivid colour gradients on top of images.

Film-based photochemistry has been on sale for over 111 years. After the market slowdown of the early 2000s, the medium has become endangered but the cameras made to shoot it are still in abundance. Out of the consumer’s favour, they got pawned for a small fraction of the price or given away. As Bellamy describes on YouTube, the cameras were brought in to the shops “by the box.”

Many used film cameras sold on eBay, the most active analogue photography marketplace, easily qualify as antique. But unlike vehicles and clothing, film cameras are able to withstand the test of time rather well. Because over a billion of them were made and no more than five million film photographers still using them, there are still plenty to go around.

Of course, there are exuberant exceptions, like **Contax T2**, recently flashed by celebrities, with price tags rivaling top-of-the-line digital bodies.

Analogue photography is not limited to legacy brands, however. **Bomm**, **Cameradactyl**, **Jollylook**, **ONDU**, **Reflex**, and **Solar Can** are some of the examples of new film camera manufacturers. The challenge of competing with cheap, well-built, functioning antique equipment is not a small one. However, new technologies like 3D printing, precise woodworking equipment, quality plastic moulding, and easier access to global marketing/distribution make for opportunities. A new camera also comes with support and warranty; while antique cameras come with a risk of fatal malfunction.

Large conglomerates and young businesses are not the only brands in the analogue market. Established but less known companies, like **Adox**, **Agfa**, **Foma**, **Lucky**, **Rollei** survived by selling film to the prosumer market, dedicated fans, and video surveillance providers.

Undoubtedly a contributing factor to the analogue revival, **the internet**, is the place where film photographers often socialize in 2021. Found on subreddits, forums, Twitter, and Instagram, the community does its best in supporting projects like the above-mentioned manufacturers.

Due to our “rebellious” 😊 commitment to outdated technology, film photographers are somewhat of an underdog, as compared to over two billion people with digital cameras. To this day, the internet produces “film vs digital” threads, often turning into rants criticizing peoples’ personal and professional choices. Though the topic is finally winding down as we wise up, there is still enough drama to warrant a bag of popcorn.

In a recent controversy, an attempt to replicate the experience of shooting film with a digital camera has spectacularly failed. In 2017, a Hong Kong-based marketing company had successfully raised HK\$ 10,035,296 (approx. \$1,280,000 USD) on Kickstarter, followed by an additional \$1,515,054 USD on IndieGoGo to build **Yashica Y35**. The brand name they were using belonged to a former Japanese manufacturer known for popular, high-quality cameras.

Despite their relative financial success, the product, a cheap knockoff of the company's former popular design, Yashica Electro 35, with inferior construction and weak digital sensor disappointed their customers and set photographers on to a sardonic crusade.

Film in the digital age.

Analogue photography owes its revival in part to digital technology. The same invention that has brought the film industry to shambles united the people who care about it. The internet is highly instrumental in persuading thousands of new photographers to try film; it made doing so easy with help of a plethora of instantly-available guides, reviews, and tutorials.



Today it is easier than ever to get feedback and help for newbie photographers. The film medium, requiring extra steps to get the picture, is a clear beneficiary.

The online community is generally friendly and helpful, treating newcomers with enthusiasm. Both kind and self-serving, we understand that the only way analogue photography can continue existing is with help of the people supporting the manufacturers. With purchases, feedback, and inspiration.

Both IndieGoGo and Kickstarter have already helped the fans and the makers fund hundreds of film-related projects. Some popular blogs and YouTube channels even gather enough attention to fund full-time careers. An increasing number of wedding and professional photographers are convincing their clients to try film as they promote the medium on their online portfolios.

Film in 2021 is no longer just competing with digital technology. It is directly benefiting from it. Without it, tools like FilmLab, an app that allows previewing and scanning negatives in real-time or Lumu, an app that turns any iPhone into a precise light measuring device would not be possible.

Modern film entered the digital realm and became dependant on it. While some photographers still prefer to print images without ever scanning and posting them online, most modern negatives have a duplicate somewhere on the web.

Some manufacturers even attempted to sell conversion kits for analogue cameras, the most recent being a Kickstarter project in 2018. While often bulky and awkward, these systems are built under the premise that there are certain qualities that many analogue cameras have which aren't replicable by digital counterparts. For some, it's the solid metal construction that has no contenders in the sea of monotonous plastic DSLR bodies. Others prefer the soft and often unique picture rendering by older lens designs.

Leica camera recently launched their ultra-expensive M 10-D model that mimics the distraction-free analogue rangefinder-type cameras with a design that has no LCD screen. Hasselblad, pictured above, has created a digital component for their modular analogue bodies. Priced at \$10,000 USD, however, it is "not for everyone."

The future of film photography.

“

The future of film photography is good. It will no longer be the primary way most people view and share their images as it was in the past. The new future of film photography will be like that of vinyl records. Most records sold also come with a free digital download, so the listener can consume in different ways. The same goes with analogue photography. There needs to be a fusion between digital and analogue photography, which we are already seeing. We shoot and process analogue, but then the images are scanned, post processed and shared via social media digitally. I'm okay with that. The initial capture done in analogue and the final end product being digital is probably the future. I'm not saying this is my preference, but if film photography is going to survive, it needs to adapt to the way people are now communicating and interacting. That's the nature of any art form, social behaviour or form of communication.

”

— Take Kayo.

The challenges of keeping the medium alive are still very real today. Even with the new interest from both the older generation of shooters and the young photographers discovering it for the first time, there are setbacks. Film photography as we know it requires industrial chemical infrastructure and a complex logistics network that has been in the process of dismantlement throughout the past decade.

Since the medium's decline, the number of jobs in the photochemical industry has shrunk, stifling innovation and talent replacement as older generations retire.

Film development equipment, such as batch processing units at the labs is dilapidating with little replacements being produced and repair parts being less available. Professional-grade film scanners are also becoming rare and expensive.



Analogue photography industry serves those who can afford it, understand it, and find it valuable. Despite the challenges that come with keeping it alive, the audience that fits those criteria is growing. The young creatives are taking interest in a unique medium and the older photographers are following them by giving their dusty cameras another go.

2020 saw an impressive number of new products for film photographers, despite the pandemic. 2021 will be no different. Given that there are no extraordinary circumstances, the analogue market may continue to grow for another ten years.

That growth may slow as the medium is likely to become more expensive. But it's likely to remain alive for many future generations.

Should it come to a complete manufacturing collapse, there are methods for making photochemical emulsions at home. Assuming that we value this knowledge, it may be available to us indefinitely.

“

In just a few years, I expect the mass market will just have phones, professionals will mostly use FF mirrorless and film cameras will outsell digital cameras. CaNikon etc. will either have to specialize, start making film cameras for enthusiasts again, or reinvent themselves.

”

— Dan K as @ZDP189 on Twitter.

Film vs digital.

For most photographers, the biggest difference between analogue and digital photography is **the process**. Digital photography is meant to interact with screens and digital devices. For a typical user, it is an instant result that can be shared worldwide within seconds.

Analogue photography is created for print. A fast-paced film lab may be able to produce prints within an hour, which is on par with digital printers. Polaroid and Fuji instant film produces prints within minutes. A typical develop and scan order at a lab in 2021 can be fulfilled on the same day but may be delayed by the backlog and/or shipping if you are sending your film via mail.

Digital devices offer the capability to produce thousands of images in very quick succession with no price difference between one frame and ten thousand. The cost of film photography is very real, averaging 31 US cents per 35mm exposure, plus the lab expenses, which can range from an additional \$6 to \$30 per roll.

The “**spray and pray**” method of holding down the shutter button, hoping that one of the images in the series will come out is either unavailable or prohibitively expensive on film cameras. A technique that can be used deliberately in sports photography, it is often counter-productive in most situations. Especially when performed frantically.

Best images, created both on film and digital cameras are often well-planned and thoughtfully executed with few wasted exposures.

Name	Kind
▶ 2012 on film	Folder
▶ 2017 on Film	Folder
▶ 2018 on Film	Folder
▼ 2019 on Film	Folder
▼ January	Folder
▼ Ilford Delta 100 - Vitessa L3/200 - Rocket Lab	Folder
000001.JPG	JPEG image
000007.JPG	JPEG image
000008.JPG	JPEG image
000009.JPG	JPEG image
000010.JPG	JPEG image
000011.JPG	JPEG image
000012.JPG	JPEG image
000013.JPG	JPEG image
000014.JPG	JPEG image
000015.JPG	JPEG image
000016.JPG	JPEG image
000017.JPG	JPEG image
000018.JPG	JPEG image
000019.JPG	JPEG image
000020.JPG	JPEG image
000021.JPG	JPEG image
000022.JPG	JPEG image
000023.JPG	JPEG image
000024.JPG	JPEG image
000025.JPG	JPEG image
000026.JPG	JPEG image

An easy organizational schema for film scans by year, month, and roll with additional info about camera and lab.

Organizing and sorting film photographs is somewhat easier than digital images. Analogue photos are traditionally stored as negatives and prints, which in some cases, may fill a lot of shoeboxes, though they will never exceed the enormous amount of JPEGs and RAW files. Even when scanned, film photographs are easy to arrange by date and roll with no more than 78 images in each folder.

It is too early to tell how long the real-world lifespan of a digital photograph may be. In theory, it should be indefinite, but the reality may prove otherwise. File corruption due to storage and transfer errors, format obsolescence, and unintended deletion are some of the ways digital files can be affected. Analogue photos deteriorate physically and predictably due to environmental elements and are known to survive intact for over a hundred years.

When it comes to **detail retention, sharpness, and colour reproduction**, both of the mediums are remarkably close. Large format film photography can create negatives of virtually any size, the largest standing at 13 feet tall. Digital sensors are able to pack an enormous amount of photo-sensitive diodes into tiny spaces.

Both mediums are fairly close in their available dynamic range, although film is considered to be more tolerant to overexposure. Nowadays, digital cameras are typically able to pack more

detail into sensors than a fine-grain film; compare 20 megapixels' worth on 35mm film versus 50 megapixels on consumer Canon EOS 5DS DSLR.

It is worth noting that the scan quality of film provided by most labs is typically less than ideal, averaging about 2 megapixels per frame for the cheapest option, with higher resolutions often available at a greater price. As the purpose of film scans is typically to share the image online, it proves to be sufficient. Film *prints*, where resolution matters more, do not require scanning. They are made straight from film negatives.

In most cases, the quantitative comparison is irrelevant since the onlooker would rarely use a loupe or zoom in to a photo to judge its quality. And even if they did, they would not be able to tell a difference between a medium-format film photograph and a professional-grade DSLR image. The minute sharpness and realism of an end-result are often more consequential to the photographer's earning potential and ego rather than demands of commercial or scientific needs.



Film grain, same as a pixel, is the unit of a minimum amount of information required to produce an image. Pixels are either square or rectangular blocks of colour. The grain is a random occurrence of silver halide crystals being affected by light photons. Pixels are uniform in size; the grain is variable, with larger particles being more sensitive to light.

At night, a random interference of electric signals creates noise in digital sensors which degrades the image; for film, larger crystals are required to photograph in the dark, which makes the images more grainy.

Contrary to what the name suggests, a single grain on a film negative is not a single silver halide crystal. It is a “cloud” of numerous particles that can only be seen as a recognizable shape under an electron microscope.

👉 **Further reading:** “Film Grain, Resolution and Fundamental Film Particles” – [American Institute for Conservation](#) (PDF).

Film grain is not easy to replicate with software. Merely adding random noise creates “dirty” highlights and, to a trained eye, it looks annoyingly close to a digital sensor interference. As this computer game developer [describes](#):

“

Unlike the digital image sensor where light sensing pixels are arranged in a regular grid, film crystals are jittered randomly over the film which gives an image more pleasing for the human eye. The possible reason for that might be the fact that the film grain does resemble the pattern how the photoreceptors are arranged in the retina of the human eye. Awesome, right?

”

Other than with grain, fidelity, and process, film differs from digital images in how it reproduces colour.

Early colour emulsions are known to produce exaggerated red and green colours, along with high saturation. As the chemistry got fine-tuned, modern film brands got the ability to replicate colour as we see it.

To achieve such realism in digital photography in all lighting conditions the cameras come with a pre-built system that allows the photographer to adjust **the colour temperature** on the go or during post-production.

👉 **Further reading:** “Digital Camera White Balance and Color Temperature” – [Easy Basic Photography](#).

Film photographers deal with light balance issues by choosing film calibrated for specific lighting: *tungsten* or *daylight*. For minute adjustments, colour lens filters can also be used or a simple adjustment in Photoshop if dealing with a scanned file.

Black and white images are almost never shot in monochrome on digital cameras. Unless you are using Leica M Monochrom or Phase One, which go for \$7,500 and \$50,000 respectively, your JPEG or RAW file will be in full colour, which you can convert in post-production.



A photo of a brown dog on green grass, taken on black and white film through a green lens filter.

The same technique can be achieved with colour film after it's been scanned, but that step isn't required as there's a great selection of black and white emulsions on the market. Other than lacking colour, monochrome film is capable of producing finer grain and higher sensitivity to light, along with simpler production and more varied development processes.

Black and white images can also be altered with colour lens filters. For example, a green filter would yield a photograph with the green leaves appearing white and red berries — black. A red filter would reverse such an effect, making leaves darker and berries brighter.

For colour photography, the “**golden hour**,” is a time of day when the light is warm and shadows are soft. The first and the last rays of the sun are known to produce very desirable lighting. This practice applies in the same way to both film and digital photography.

For black and white, on either format, mid-day sun may instead produce high-contrast, dramatic images, which otherwise look harsh and unpleasant in colour.



Once the light becomes too plentiful or isn't strong enough for the film at hand, the challenge can be overcome with **push- and pull-processing**.

Unlike a digital sensor, film cannot adjust its sensitivity on a whim. However, in many cases, ISO 400 film can be shot at ISO 800 (+ 1 stop), ISO 1600 (+ 2 stops) and ISO 200 (- 1 stop) and developed in a modified process, according to the number of stops and direction it has been altered.

Some film types allow more pushing (adding stops) or pulling (removing stops) than others, black and white being the most versatile in this aspect.

Pushing and pulling is done at the lab by adding time and temperature for push and keeping film in the mixture for a shorter time for the pull. This service has to be requested, isn't always available, and typically costs extra. Unless you are developing film at home, in which case it will only cost you time and effort.

Push processing tends to produce images with higher contrast than "box speed," an ISO marked on the box the film was sold in. Pull processing may yield a reduced contrast.

Black and white film is loved by film photographers for its versatility. Easier push- and pull-processing, great results in mid-day, ultra-fine grain options, and easy to develop at home. It is also often more tolerant of exposure mistakes and can capture difficult lighting better due to its high exposure latitude.

Photography 101: The shutter.

★ **Note:** *You may have taken some photos on your phone but never gave too much thought to how the camera works. In this case, read on. If you already know this, or only planning to shoot fully-automatic film cameras, then scroll to "[Buying a film camera](#)," "[Buying film](#)," or "[Making photographs](#)."*

Mobile phones and digital cameras in default "automatic" mode make most of the necessary decisions to create fairly well-lit, sharp photographs. It certainly is convenient to frame an image and receive it immediately with a tap of a button. However, if you learn how to understand your lens, shutter, and film you will have the wisdom to take better images.

All cameras provide three core tools that work together to create an image. As the trigger is pressed, a shutter provides a precisely measured amount of light that is being focused by a lens onto a photosensitive medium, i.e.: film or digital sensor.



On the left, the photo is taken with fast shutter speed, allowing the camera to “freeze” the water droplets. On the right, the droplets are no longer seen; they have become smudged via motion blur.

A **shutter** is what makes the clicking sound when a picture is taken. While some digital cameras employ electronic shutters that you cannot hear, the concept is similar. Whether it is a digital sensor or photographic film, a photograph requires the light to touch it for a split-second. It can, of course, stay open for a long time, letting the light saturate the film/sensor, but the real-world objects are never still. Their movement creates *motion blur*.

Although typically undesirable, as we tend to prefer sharp, clearly legible images, many photographers use motion blur to their advantage. With skill, it can be used to emphasize speed, create effects, or even hide objects and people from sight.

Aside from blurring effects, it’s also important to understand that longer exposures/slower shutter speed let more light onto the sensor or film. Same way as keeping a kitchen tap open for longer yields more water in a glass.

Cameras that have no flash unit have to keep the shutter open for a longer time to let ample light in. A tripod is a cumbersome but useful way to hold them still in those situations,

minimizing the smudging.

👉 **Further reading:** *[“A Simple Guide to Using Flash on Manual Film Cameras: Achieve Greater Control Over Your Artificially-Lit Photographs”](#)*

Film cameras usually come with one of the three main types of shutters. **Leaf shutters** are made of thin metal or plastic petals that work together to open or close. Leaf shutters often look like aperture blades, and in some cases, they are: certain cameras have aperture blades that stay shut and once the trigger is pressed they briefly reveal an opening matching the size of the set aperture.

Plane shutters are systems made with horizontally moving “curtains.” These shutters are common in SLRs and rangefinder cameras. These types of shutters are often louder; they also tend to shake cameras more than leaf shutters, making slow-speed exposures a bit more difficult.

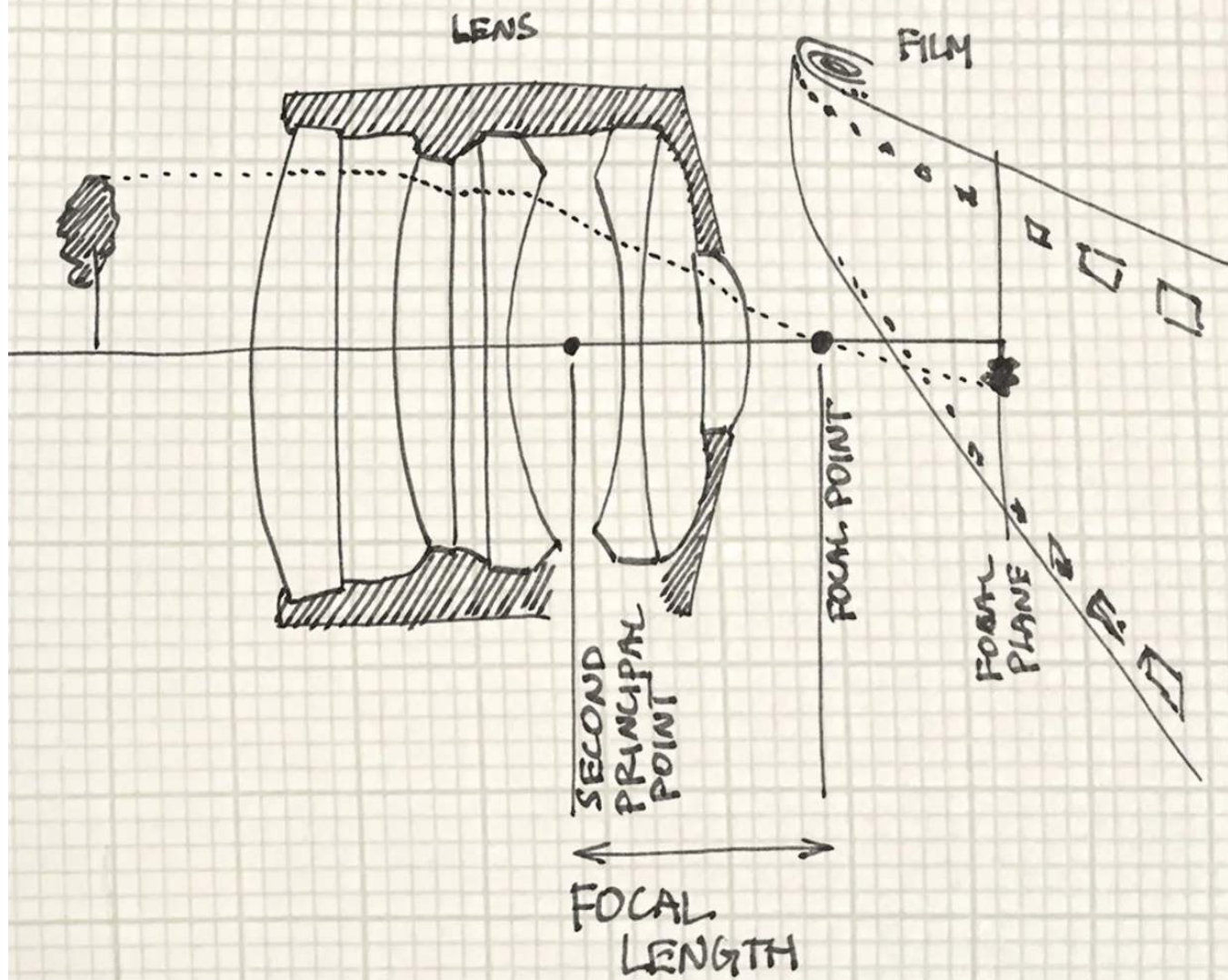
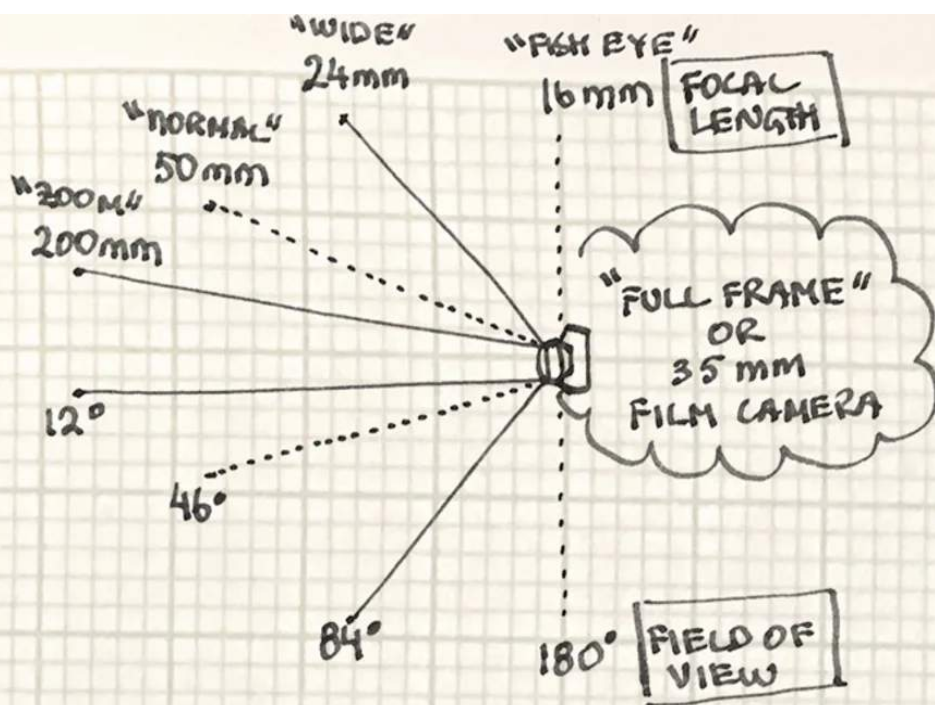
Flip mirror shutters exist in some SLR cameras. Most of the time SLR construction uses a combination of a flip mirror and curtain/leaf shutter, however, some manufacturers build specialized titanium foldable curtains.

Electronic shutters are only available on digital cameras. They operate by programmatically setting the time to collect light. Not to be confused with electronically-triggered shutters which can exist on film cameras: those types of shutters have an electronic interface that calculates the timing, instead of a mechanical clockwork.

Photography 101: The lens.

✪ **Note:** *Understanding focal length will help you choose your next lens, however, this is a tricky concept to grasp for a novice and isn't essential to taking good photos. Feel free to skip towards “aperture.”*

Your camera's lens typically performs three functions. It creates a field of view, from a wide-angle to “zoom.” It controls the amount of light that falls onto the sensor or film. It focuses the image.



Focal length is related to the human field of view, as in how much of our surroundings are seen at once. In a camera, it is the distance from the lens's optical centre, or more precisely a *second principal point* to the *focal point*. A shorter focal length yields a wider field of view and vice versa.

On a full-frame digital camera or 35mm film camera, 50mm focal length is considered to be approximately equivalent to our vision or 46° horizontally. This is called a “normal” lens, good for most situations, including portraits.

A 200mm lens on the same camera would produce a “zoomed-in” view or 12° field of view. Zoom lenses tend to make our faces look wider, backdrops larger, produce a shallower depth of field and larger *bokeh* balls.

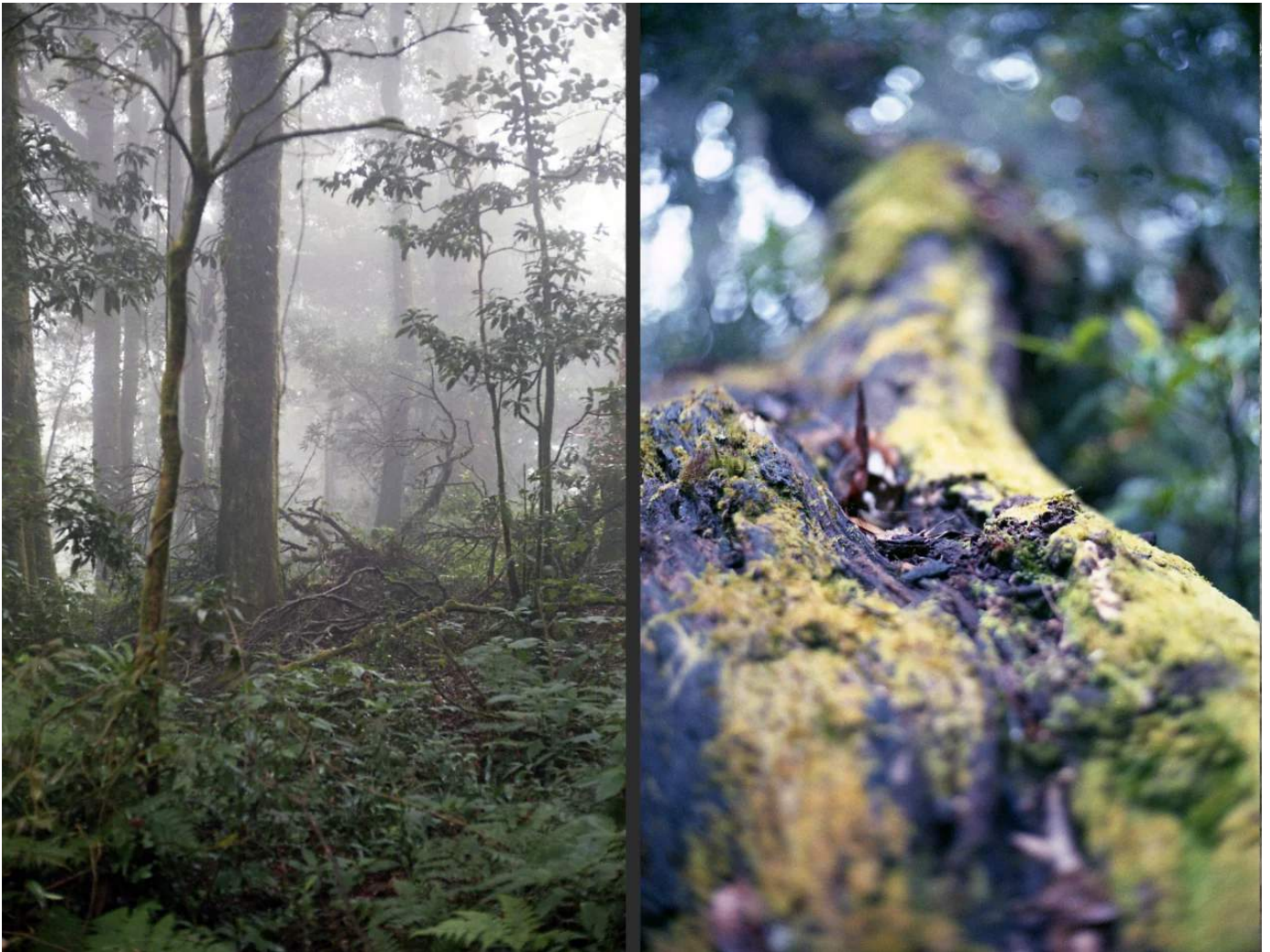
24mm lens would be a “wide” lens, taking up 84° of the field of view. This type of lens is common on mobile devices; it tends to make our faces look slimmer and noses bigger at close distances. A “fish-eye” lens will capture a 180° view and will be marked as having a 16mm focal length; this kind of lens produces significant distortion and isn't used often.

If you are using a medium/large format camera, a crop sensor, or 110-type film, the focal length numbers are going to produce different field of view degrees. For example, on medium format, you will need a 75mm to 100mm lens to produce a similar image to that of a 50mm lens on 35mm film.

👉 **Further reading:** “Optical Terminology” (*advanced*) – [Canon](#) (PDF).

Aperture controls the amount of light available to the camera and also the depth of field. Most lenses have aperture blades made of thin metal petals, which make the iris wider or narrower. It is exactly the same mechanism as what we have in our eyes.

The *f*-numbers on the lens are inversely proportional to the size of the aperture pupil. Meaning, the smaller the number the wider the opening and more light.



On the left, the photograph has a large depth of field, having most of the trees in focus. On the right, only a small slice of space is in focus due to a small depth of field. The balls of light at the distance have their own name: bokeh, which comes from Japanese ボケ, which means “blur” or “haze.”

Aside from the amount of light available, aperture controls the depth of field in an image. A small depth of field means more blur (also referred to as background separation) around your subject, a large depth of field – less.

The depth of field decreases with wider apertures/smaller f -numbers (more light) and increases with small apertures/larger f -numbers (less light). **The more light you let in, the more blurring you’ll get.**

The smallest f -number at which your lens can stop the aperture is what the manufacturers usually mark along with focal length. For example, $f2.8$ 55mm lens means that it has the smallest aperture value of 2.8 and has a focal length of 55mm, which has approximately the same angle of view as human vision.

Lenses with large maximum apertures/smaller f -number are typically more expensive as they often require more optical glass and higher precision in engineering.

👉 **Further reading:** “The Four Factors That Affect Depth Of Field” – [SLR Lounge](#).

Photography 101: ISO & exposure.

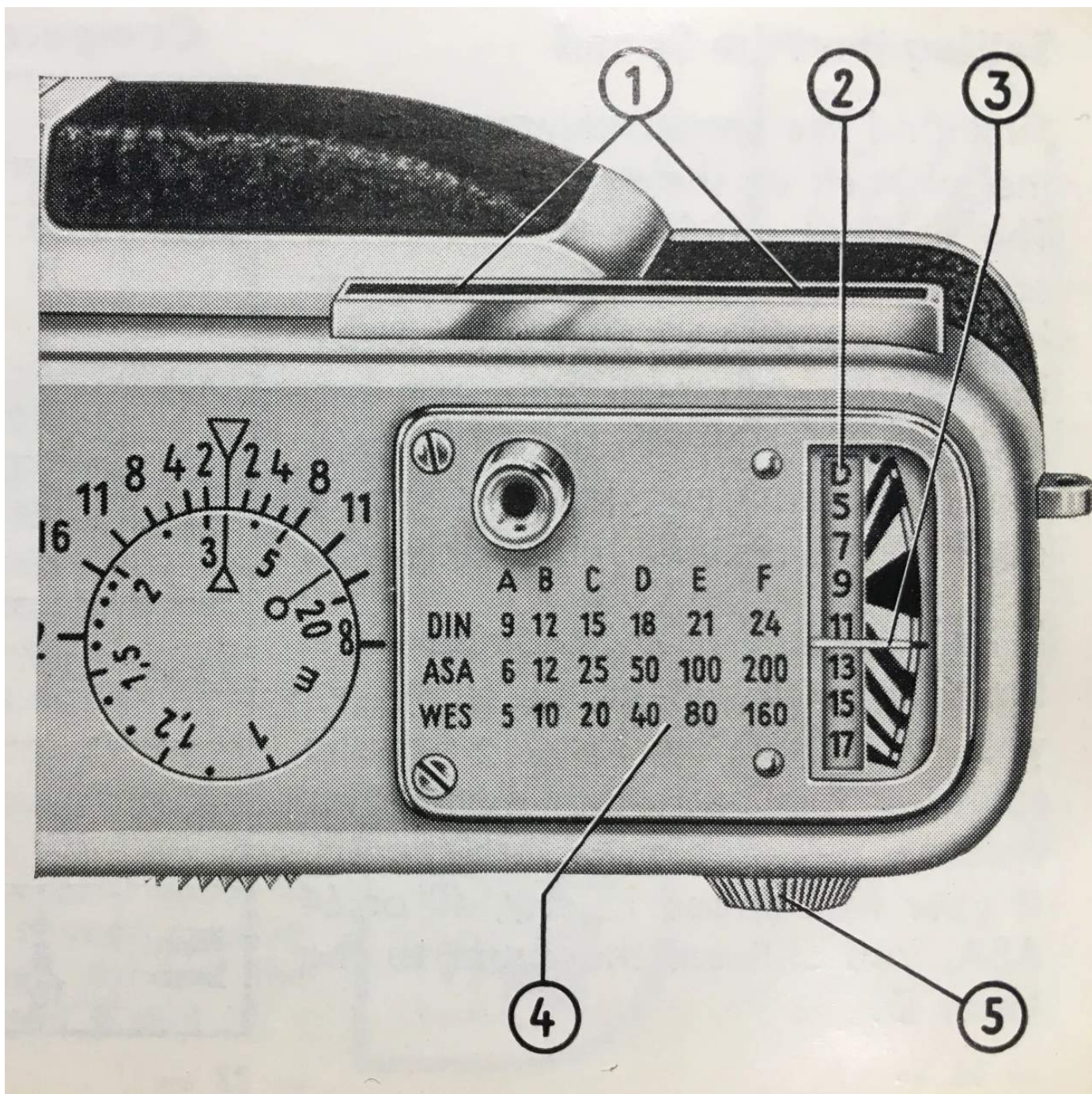
ISO numbers, sometimes marked as ASA on older cameras, is the sensitivity measurement, commonly referred to as speed, for the sensor and film. Sensors can have this value adjusted at any time, however, a roll of film must be shot at a constant ISO.

Those numbers are typically marked as 100, 200, 400, 800 and so forth, up until 3200 or higher. At high ISO film becomes grainy and digital images become noisy. **Each time the ISO doubles or halves, it is said to have changed a full stop of exposure.**

Image exposure describes how bright or dark the photograph appears. *Framing* means choosing what to photograph and from what angle. *Focus* lets the photographer pick single or multiple subjects of interest. Out of the three concepts above, exposure is typically the hardest to achieve perfectly. Evidently, auto-exposure was the first function that got automated on cameras.

Though convenient when automated, it is important to know how to adjust exposure yourself for better creative control. And to be able to shoot awesome, old film cameras like the Russian [FED-5b](#).

The exposure or the amount of light received by the film is determined by shutter speed, aperture, and ISO combined. Slower shutter speed lets more light in, so does wider aperture (smaller *f*-numbers) and higher film or sensor sensitivity. All of those properties are measured in standard values, called *stops of light*.



All digital cameras have a built-in light metering system that automatically sets the exposure. Many film cameras employ similar systems, while there are also those which have external devices meant to help you measure light. The uncoupled light meter, above, lets you dial in the film ISO/ASA and get a single number, called Exposure Value, that you can then set on the camera lens.

A stop of light is a perceivable difference in brightness. For shutter speed and film ISO, it is rated by doubling or halving the values. For example, ISO 100 is one stop less sensitive than ISO 200. Similarly, a shutter speed of 1/250th of a second adds one stop of light over 1/500th of a second. F-stops on the lens have their own numbers which are expressed as ratios of a lens's focal length to the aperture diameter. The most common full-stop numbers are $f1.4$, $f2$, $f2.8$, $f4$, $f5.6$, $f8$, $f16$ — where $f1.4$ lets in one stop of light more than $f2$, etc.

Combining all of the above, in a fully-manual mode with an ISO 100 film you can choose to photograph your subject at a wider aperture to blur out the background and compensate for the additional light coming in with faster shutter speed. You may choose to slow down your shutter speed when you shoot fast-moving vehicles to emphasize speed and compensate for the additional light with a smaller aperture opening.

👉 **Further reading:** “Metering and Exposing Color Film” – [Alex Burke Photography](#).

To create a well-exposed, sharp photograph, all of the above concepts must be employed and often adjusted by the photographer manually. To make a great photograph, one must either understand, exhibit, or break a wealth of lighting, composition, and subject rules.

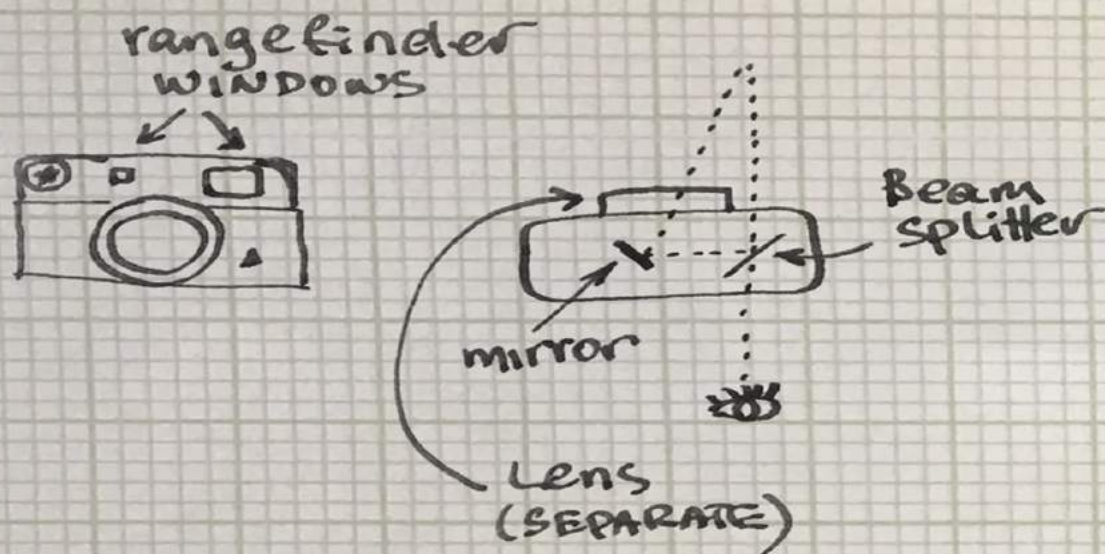
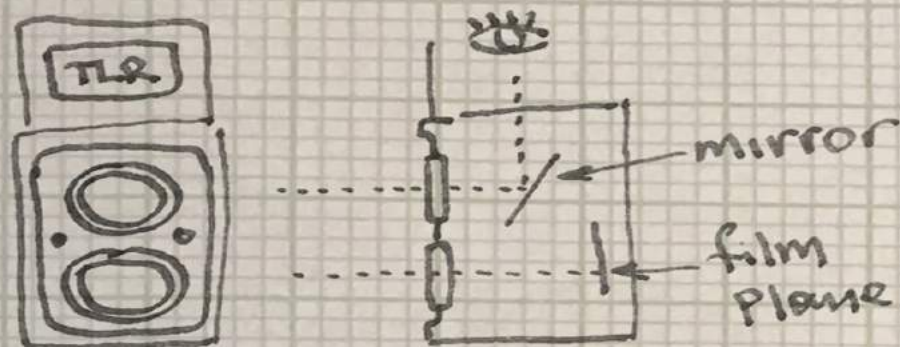
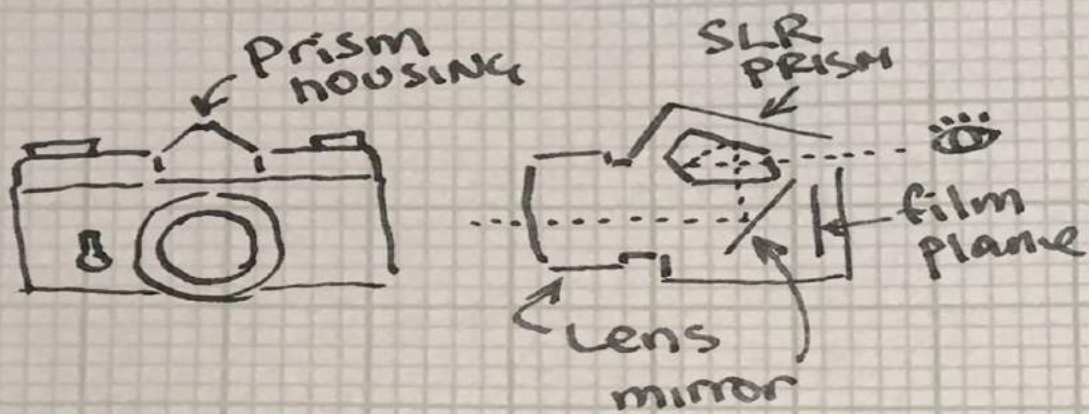
Most importantly, an image must tell a compelling story. The technical know-how and a good camera can certainly help.

Photography 101: Types of film cameras.

In 2020, film cameras can still be bought new. The big camera brands [Leica](#) and [Fujifilm](#) still have models in production, along with a few smaller companies many of which have been mentioned above. As for used cameras, the choices are endless.

Film cameras are often differentiated by the focusing device and the film format.

There are four main focusing device types: SLR, TLR, rangefinder, and zone-focusing/viewfinder. Autofocus is available on some film cameras; it is, however, always used in conjunction with either SLR or a viewfinder-type device.



A film SLR isn't much different from a DSLR. It doesn't have an LCD screen but the viewfinder works on the same principle. With help of a prism and a mirror, you are looking through the lens, seeing the same image as what would fall onto the digital sensor or film. Once the trigger is pressed, the mirror flips up, allowing light to hit the film, and then down.

SLRs are fantastic cameras to get started with as they give a live view of what's in focus, with many models controlling the exposure automatically. Most SLRs come with many options for interchangeable lenses.

Their downsides are typically louder, shakier shutters, larger bodies, and occasional difficulties focusing in dark lighting.

All TLRs are made to shoot film, producing square exposures on medium format rolls. Those cameras come with twin lenses, typically stacked on top of each other. Some TLRs let you change lenses, though the choices are limited.

TLRs look unique and provide special framing and position options for photographers. However, these cameras usually aren't small and suffer from the same drawbacks as SLRs, except for the shutter, which is typically a quiet and light *leaf*-type.

Rangefinders take some time to get used to but offer, in principle, quieter shutters, lighter construction, and a faster way to focus, especially in dim lighting. This design precedes SLRs.

Rangefinder-type cameras are still very popular amongst film photographers and collectors; they can garner a very high dollar value. Leica cameras, known for their hefty price and a place in history for popularizing 35mm film are predominantly rangefinder-type – even the new digital versions.

These cameras need periodical adjustment as the focusing mechanism tends to wane off sync with the lens. Rangefinders typically can not photograph anything closer than 1m/3ft, they do not work with macro or telephoto lenses. The image that you see in the finder window is only an approximation of the final result, with no depth of field preview and occasional parallax error.

Viewfinder/zone-focusing type cameras. These cameras offer no manual focusing aid, other than letting the photographer dial-in the estimate of how far the subject is. These cameras often look like rangefinders but have no mechanism that produces a ghosting image.

Because of their simplified construction, these cameras are easier to repair and maintain, they tend to be cheaper and lighter, but do take some time to get used to. It is still perfectly possible to take very crisp photos with zone focusing.

Some viewfinder cameras, instead of offering zone-focusing marks that let you dial in the distance to the subject, come with auto-focus. Because of the complex electronic components required to run such a function, they are often difficult to fix if broken.

Large format cameras often use **ground glass** to let the photographer preview the image – although it's always upside-down.

Choosing and buying a film camera.

There is no “best” camera. Because there’s a large variety of applications, preferences, and variations across models and years it is advised not to expect perfection from even the most expensive pieces. The variety of used film equipment is so abundant that it is simply not possible to have one that does it all. There are, however, a few recommendations that can get you started, below.

Yashica Electro 35 is a fantastic rangefinder that boasts a versatile, sharp lens and is easy to use. You can start shooting it without having to know any of the photographic concepts mentioned above, as long as you take a few minutes to study it. The drawbacks are its large size, a POD issue (see linked article) and a finicky battery.

Any of the cameras from the **Canon QL** lineup can serve as a great everyday shooter; some will require batteries — others won’t.

Polaroid SX-70 is a very well made camera that produces instant photographs using fairly expensive, about \$2.75 per shot, images. It folds nicely and is one of the few instant film SLRs.



When buying a used film camera, expect to get occasional duds. These pieces may be very old and aren't easy to fully inspect without running a roll of film though.

Look for a good return policy and **“tested with film”** items where the seller can prove their workability with actual photographs. Such cameras often cost more than the same untested pieces. This is where you will need to make a judgement call.

Cameras marked as “recently CLA’d” (serviced) should come with a receipt.

Look up a few recent bids on eBay to estimate a fair price, but don’t pay too much attention to “buy it now” listings. It only matters how much the cameras sell for, not how much the merchant wants. **Collectiblend** is a fantastic resource for understanding the used camera market, although it is not 100% accurate.

Unless buying from a reputable seller, **it is not recommended to spend more than \$200 on your first camera**. In any case, do check that the camera’s shutter, focus, and aperture are working. You may need to bring batteries if you’re buying in person and the camera requires them to function.

Shining a flashlight through the lens may reveal a lot of nasty surprises, like fungus, scratches, and separation. Some dust, even occasional scratches on the front element will have no effect on an image, but fungus does grow and lens separation is a serious issue.

👉 **Further reading:** “Buying Vintage Lenses Part 1: Dealbreakers” – [Shawnee Union](#) (YouTube).

Should your candidate have a clean and clear lens, working aperture blades, have no focusing issues, working film transport (film winding mechanism) and an accurate shutter, it should be good to go. Although some cameras can still produce light leaks, they are typically a cheap and easy fix. Look for pieces that look clean and are tested.

Use Twitter and Reddit to ask questions about postings, but don’t forget that if it’s a great deal, someone may steal it from under your nose!

Understand all the fees, including shipping, return shipping, taxes, and import fees.

The sweetest finds could be at your local thrift store, camera dealer, a friend, eBay, Etsy, or a flea market. Unless you are settled on buying a new film camera, expect to spend a couple of weeks hunting your future gear down. This process is full of frustration and excitement for all film photographers; it is unavoidable but can also be loads of fun.

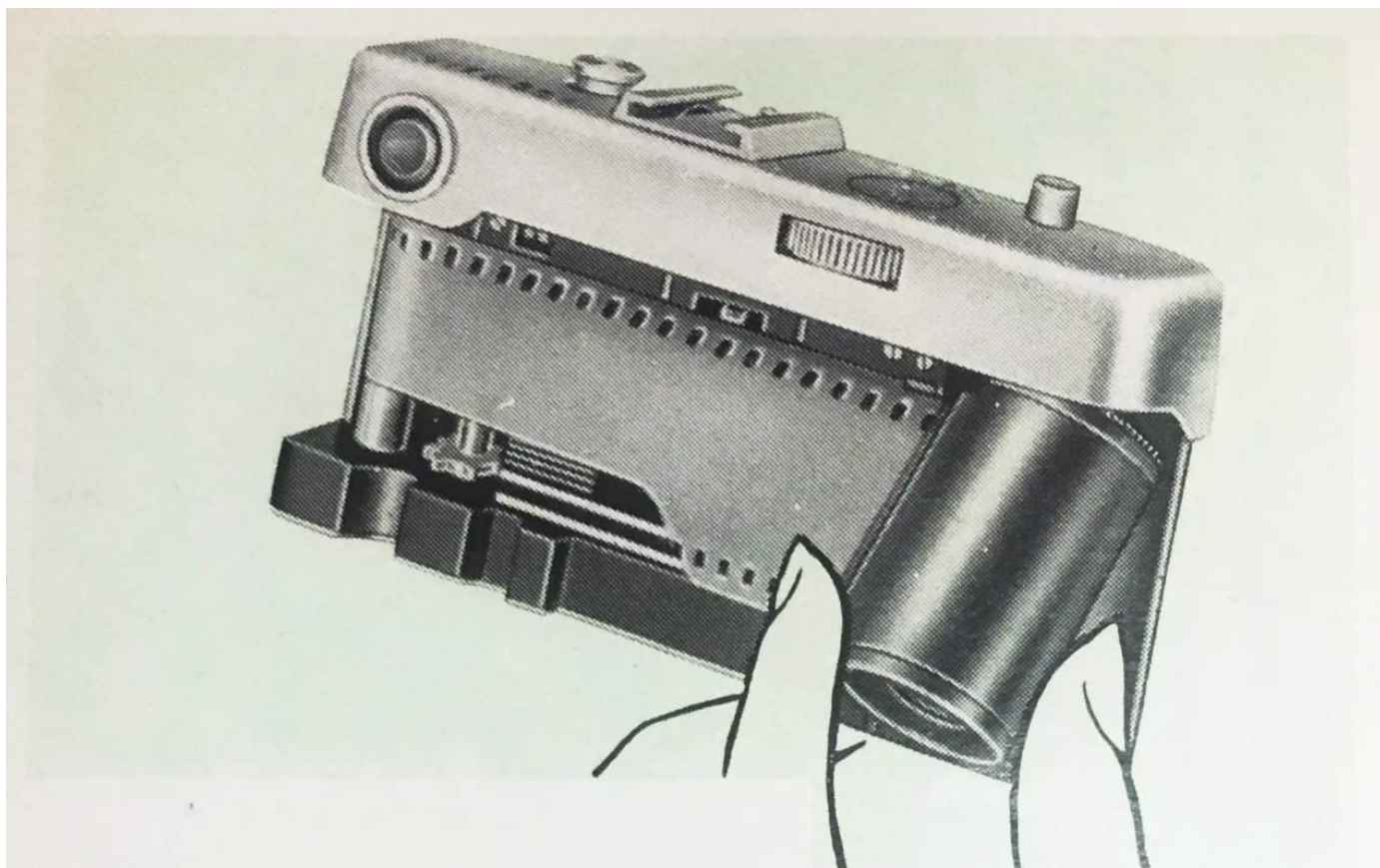
Just beware of **GAS** — *gear acquisition syndrome*; a strong compulsion to buy way too many cameras. It is very real. 🤖

Choosing and buying film.

There are hundreds of film choices in 2021.

Many film stocks available to the consumer market are white-labelled emulsions, sold by marketing and distribution businesses. Kodak is a good example of such a relationship. Eastman Kodak is a company with headquarters in Rochester that makes all film that can be bought under the Kodak brand. Kodak Alaris is another business that has the rights to sell Eastman Kodak film.

JCH Streetpan's original stock was produced solely for surveillance cameras, not available for consumers. Many emulsions that you can buy from Film Photography Store qualify, so does Stephen Dowling's brilliantly packaged Foma film as **Kosmo Foto**.



Aside from repackaged films, there are tons of expired film out there as well. The kind that's not being made anymore and is a part of our inheritance of 100+ years of research and development. Some of these films will produce colour and contrast shifts, while others will remain true to the original manufacturer's specifications.

It is generally suggested to add one stop of exposure for each decade the film has laid expired. For example, a 200ISO film that has expired in 2009 can be shot at 100. This is, however, a very approximate *suggestion* meant to compensate for fogging and colour shifts; it should not be overdone. The best way to make deliberate images with expired film, is to shoot and develop test frames first.

Of course, there are also companies that both produce, market, and brand their own film. Fuji and Ilford are good examples.

Today you can still buy film at many local drugstores, photography stores, and even places like Walmart. You can also buy film online from places like **Analogue Wonderland**, **Film Photography Project**, and **B&H**.

When it comes to choosing the type, there are generally three categories: black and white, colour, and slide. But before you make up your mind about the colours, grain, contrast, and saturation, consider how you are going to develop it.

Most labs can process colour C-41 film, however, monochrome film may be something that they can not do. In which case, you can opt for Ilford XP2, a black and white emulsion that works with C-41 process. Any lab that processes colour can develop it.



Slide film produces *positives* rather than negatives. It is a bit harder to shoot due to its sensitivity to stark brightness and high contrast scenes. It may look its absolute worst in the midday sun. It does, however, look fantastic in soft light. Ask your lab if they can process E-6.

Other than seeing film negatives or prints in-person, you can search for your brand and get a decent number of online reviews and samples. Keep in mind, however, that the same scanned emulsion may look very different depending on the scanner and the software which were used during the scanning process.

If you are wondering how much it will cost you, assume an average of US \$12 per roll. For 35mm film, look no further than the pricing guide below:

35mm Film Price Guide.

I built **35mm Film Price Guide** to help you find *your next ideal film at a fair price*. It features average cost stats across multiple retailers, trends, descriptive summaries, and sample images for 35+ popular stocks. Search, instantly, or discover brands one-by-one.

→ **35mm Film Price Guide.** 🇨🇦 🇺🇸 🇪🇺 🇬🇧 🇯🇵 🇩🇪



Making photographs: loading and unloading your camera.

To make a photo using a film camera you'll need to load the film, make exposures, unload, and develop.

Before you open the camera's back make sure that there is no film inside that hasn't been rewound yet.

Each camera has its own quirks when it comes to loading film. Generally, there would be a dedicated lever on the side, or you may be able to pull on the rewind crank. **Never apply excessive force to your camera.** No physical action should be not harder than turning a doorknob.

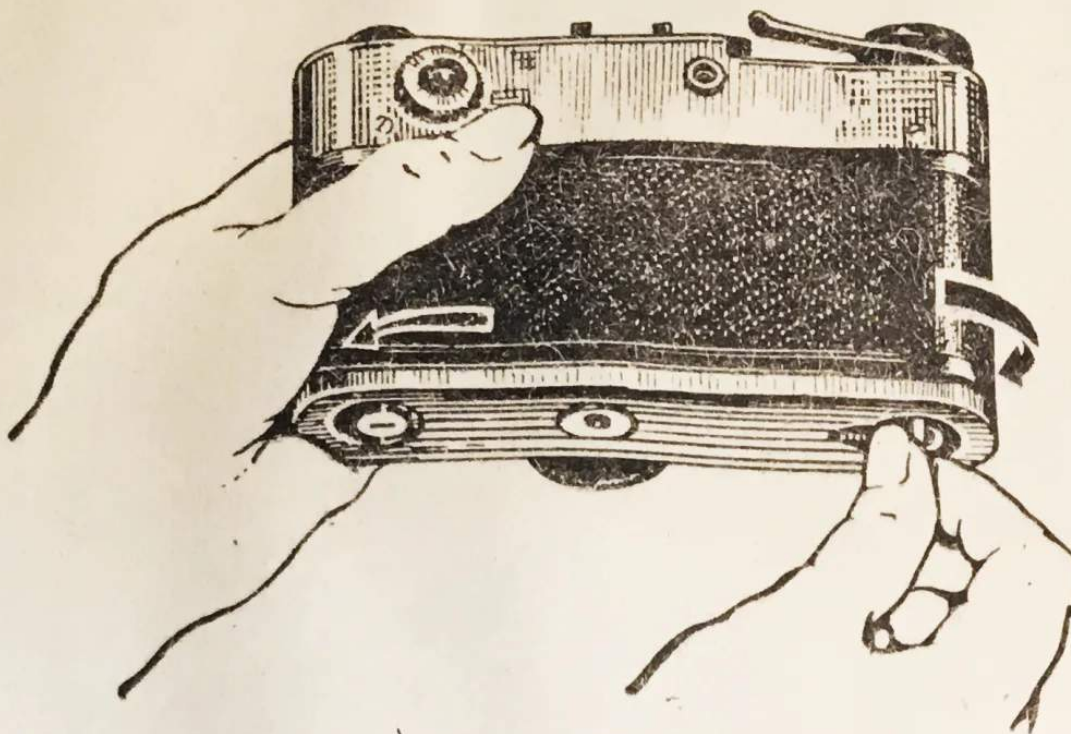


Рис. 3

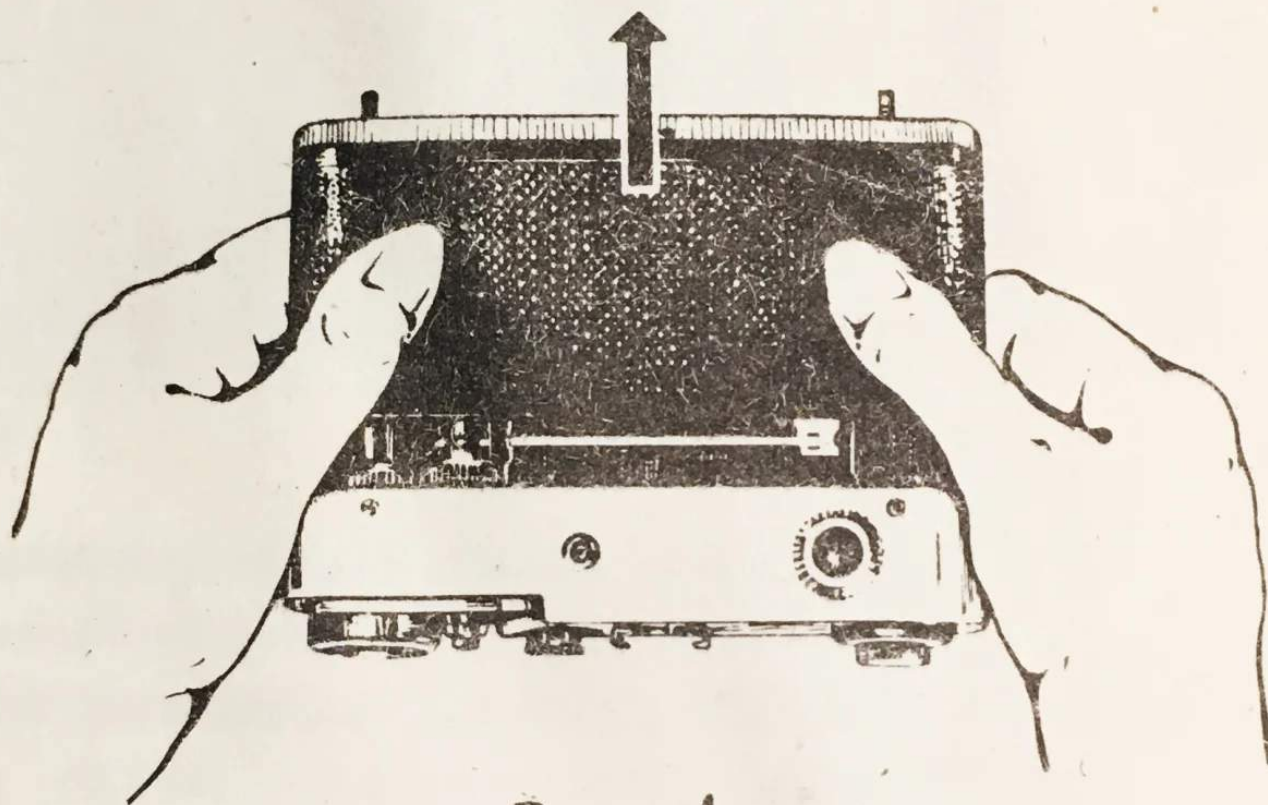


Рис. 4

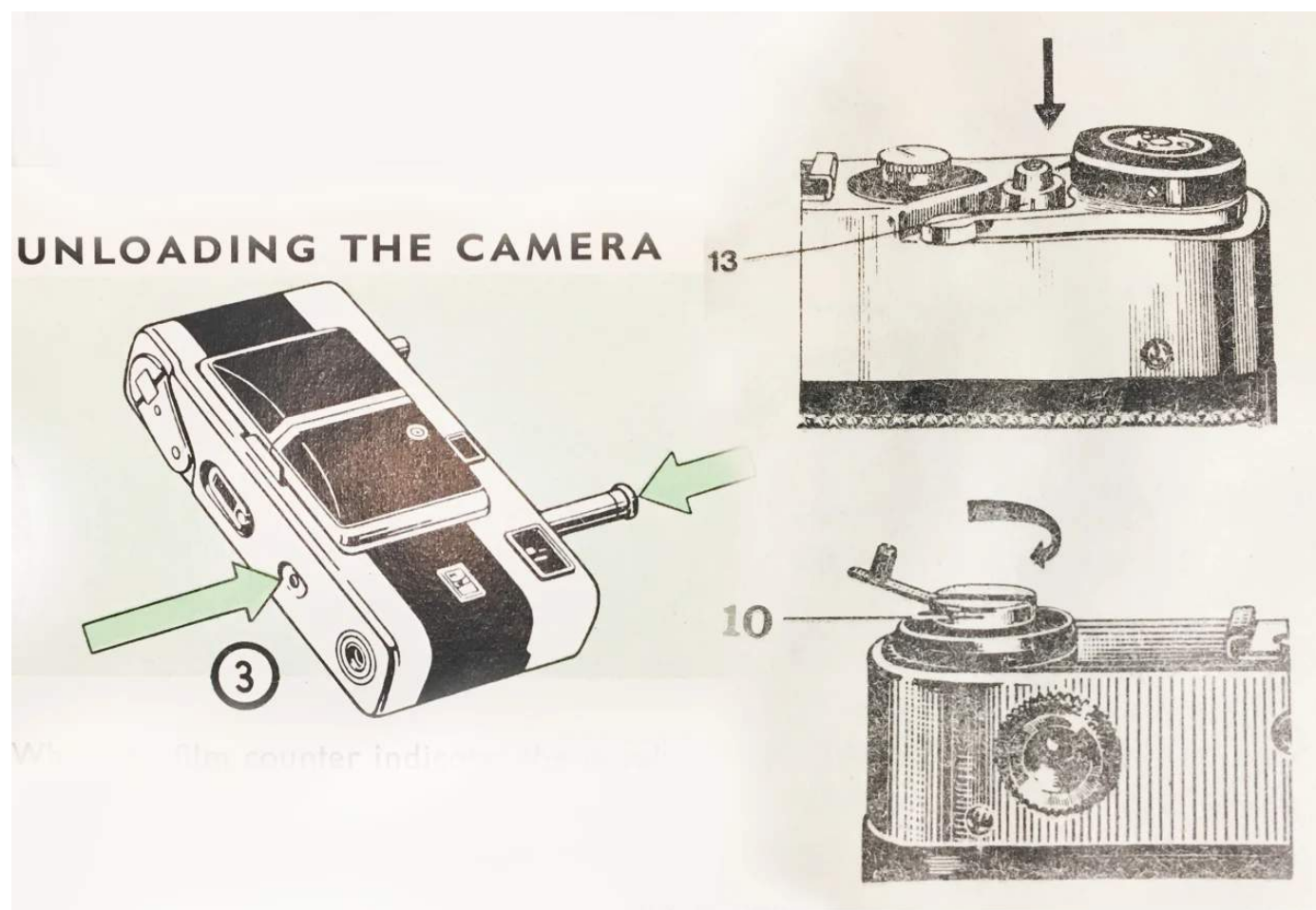
Opening instructions on FED-5 Russian film camera.

Inside the camera, there would typically be a take-up spool with a way to attach the free end of your film. It's important to ensure that your film is firmly secured on the take-up spool. A good way to check is, once you closed the camera back, that when you crank it, your rewind knob rotates as you wind the film forward. Some cameras have other ways of testing this, while others have none – but you should generally feel the resistance when you advance.

★ **Note:** *Fuji-branded 35mm films are often wound significantly tighter than Kodak ones inside their cassettes.*

Your first time loading the film camera may be daunting. There's a way to do this wrong, which may lead to missed exposures or ruined film. But don't despair. Every photographer, digital or film, would have made mistakes leading to a loss. If you are smart about it, it will happen only once, or never.

After you've loaded your film, took the photos, and reached the end of your roll, it's time to rewind. Many cameras do not let you do that unless you have unlocked them. Cameras with a motor will do it for you automatically.



Left: unlocking the rewinding mechanism on Vitessa L film camera. Top right: unlocking the rewinding mechanism on FED-5. Bottom right: rewinding film on FED-5.

A button to unlock the rewinding mechanism is typically the least conspicuous one and is deliberately made hard to press accidentally. It may look like a tiny metal knob that has little give when you press it. Once you do, you may hear a quiet click. Now you can rewind your film back into your canister.

Keep rewinding your film until you can feel the motion free up completely. You are looking to have *all* of the film inside the canister with no tail end remaining. A *good way to tell if your film was exposed or not is the sticking out “tail,” or leader from the 35mm canister, which signals that the film is ready to be inserted and used to take photos.*

Once all of your film is back in the canister, open that camera up and get it out. It's time to develop your images at your favourite lab.

Making photographs: metering light and making exposures.

When taking photographs, many newer film cameras will take care of the exposure metering for you. Some will focus your lens as well — just like your digital camera.

For manual film cameras, there is a way to measure light using nothing but your eyes. However, this is not a beginner's technique. If interested, look up the **Sunny 16 Rule**.

Cameras with built-in “coupled” light meters will most likely adjust your aperture automatically and leave you to choose a correct shutter speed. This way you don't have to worry about ensuring that your photo is well-lit. These types of cameras are called **shutter priority**. Canon QL25 is an example of such a camera.

Aperture priority mode will set a correct shutter speed for you and will let you choose an aperture. This is sometimes more desirable as you can directly control your *depth of field*. Yashica Electro 35 is an example of such a camera.

Some cameras will let you choose either of the above or let you *shoot fully manual*. Cameras that offer this way of shooting often stay fully functional, even when the battery runs out.



Night shots are the most difficult ones to meter for. Built-in uncoupled light meters aren't typically good enough. This photograph was made with the help of Lumu, a free light-measuring iOS app.

Yet other cameras come with integrated, **uncoupled light meters** (see illustration under “Photography 101: ISO & exposure” heading, above). They will not automatically adjust any of the camera functions for you but will give a number that you can dial in by hand. These types of meters are hard to come by in a good, functional condition. They require no batteries to function.

Shooting with an external light meter is similar to having a camera with an uncoupled light meter. But you will have to hold one more device in your hand.

Better yet, you can download an iOS or Android app that can measure the light and give you a live preview of how your shot will look like. This is the cheapest method as many such apps are free. The accuracy will depend on your mobile device; an iPhone can be more accurate than a DSLR.

👉 **Further reading:** “How well do smartphone light meter apps work?” – [StackExchange](#).

Making photographs: developing your film.

Unless you know how to develop at home, you will need to **find a film lab** to do that for you.

If you live in a large city, you are almost guaranteed to have at least one lab at your disposal. However, it may not always be an obvious find.

The first thing to do is to search online. If the results aren't satisfying, try reaching out via social media and forums. Talking to local film photographers helps too. Before I wrote [this guide](#) on labs in a small Thai city, the common consensus online was that there is just one. Turns out there were seven!



Ta, founder of Rakuda lab in Chiang Mai, Thailand. Her and Khim develop every roll by hand.

If all fails, consider sending your film to a lab in a different city. Luckily, labs that are willing to accept online orders are much more likely to advertise that service on their website. It is generally safe to mail your film, but I would avoid doing that across the border. Mark your packages “LIGHT SENSITIVE.”

Once you find your lab — ask questions. See if you can find samples of their work, what options do they have for developing and scanning resolutions and if there any special services that they provide. For example, some of the images in this article have a dark border that

accents the non-exposed parts of the emulsion; a free, special order from [Rocket Repro](#) in Vancouver.

Understand that film development, even when using machines, involves a lot of work and care. Take the time to get to know your lab staff, it may help you get better results.

👉 **Further reading:** “How to Develop Film with Beer” — [PetaPixel](#).

Taking care of your gear.

The best thing you can do for your old film camera is to use it. Actively “exercising” the gear and shutter mechanism ensures that no parts get fused over time, the dust inside gets a regular shake, and fungus gets irradiated by the sun rays.

If you want it to be in a top-notch condition, you can send your camera in for CLA service — **c**lean, **l**ubricate, **a**djust. Understand that this is not the same as a repair service; the job usually costs just over \$100 USD. Choose your repairmen carefully and keep shipping charges in mind.

While not all cameras need CLA, they do need an occasional wipe from dust and debris. Try not to touch the glass as it often ends up smearing whatever dirt you had on it, making things worse. A blow of air from a puffer would typically do.

Don’t worry too much about small lens scratches. Sharpness and resolution of a lens are owed to its entire construction, not just the surface of one element. Even with cracks, the glass may perform remarkably well, although the contrast is likely to be affected.



Keep your fresh film out of the sun, the fridge is a good long-term storage spot. Some prefer to freeze their film to keep an old stock fresh. If you do that, before shooting, place your canister into the fridge for a day and then one more in your room.

While travelling, consider that any film that you leave inside your camera will need to go through airport X-Rays. Some film will get degraded after one or a few scans; the higher the ISO the more likely it would get affected.

An ISO 800 film can go through the scanner once or twice with no issues, but the effects are compounding. Personally, I take all my film out of all the packaging and keep it in a clear ziplock bag. I hand it over to an agent by the X-Ray and very nicely ask them to hand-check it.

Other than in Singapore, I was always able to get my film hand-inspected.

👉 **Further reading:** “[Air Travel With Photographic Film](#) – Packing, Airport Security Checkpoints, and Other Trip Considerations”

Where to share your work.

You've got photos! Now what?

Before uploading, consider making a photo album and sharing your experiences with friends and family when they come over — *assuming that the pandemic is over by the time you're reading this*. This is truly the best way.

Online, you can start by checking out **#BelieveInFilm** and **#iShootFilm** hashtags on Twitter and Instagram. Have a look at Reddit **r/analog** and **r/polaroid**, as well as numerous forums and maybe Flickr, too.

Analog.Cafe regularly accepts **submissions**. Each is read and considered carefully. Accepted articles and photo essays get edited for style and grammar with full rights always belonging to the original author.

Learn more.

The work of great artists, regardless of medium, can provide insights and inspiration. For film photography, see the works of **Ansel Adams**, **Mary Ellen Mark**, **Tony Vaccaro**, **Dorothea Lange**, **William Eggleston**, **Vivian Maier**, and **W. Eugene Smith** for a start.

On Twitter, give **@studio_c41**, **@ZDP189**, **@EMULSIVEfilm**, and **@analog_cafe** a follow if you haven't already.

On Instagram, **@japancamerahunter**, **@35mmcblog**, **@chichic**, **@tetedeloup**, **@analog_cafe**.

On YouTube, **NegativeFeedback**, **Matt Day**, **bigheadtaco**, and **EduardoPavezGoye**.

For books, check out *Photography, the Definitive Visual History* by Tom Ang, *The Americans* by Robert Frank, and *Light and Film* by Time-Life Books.

+

Have fun shooting film!