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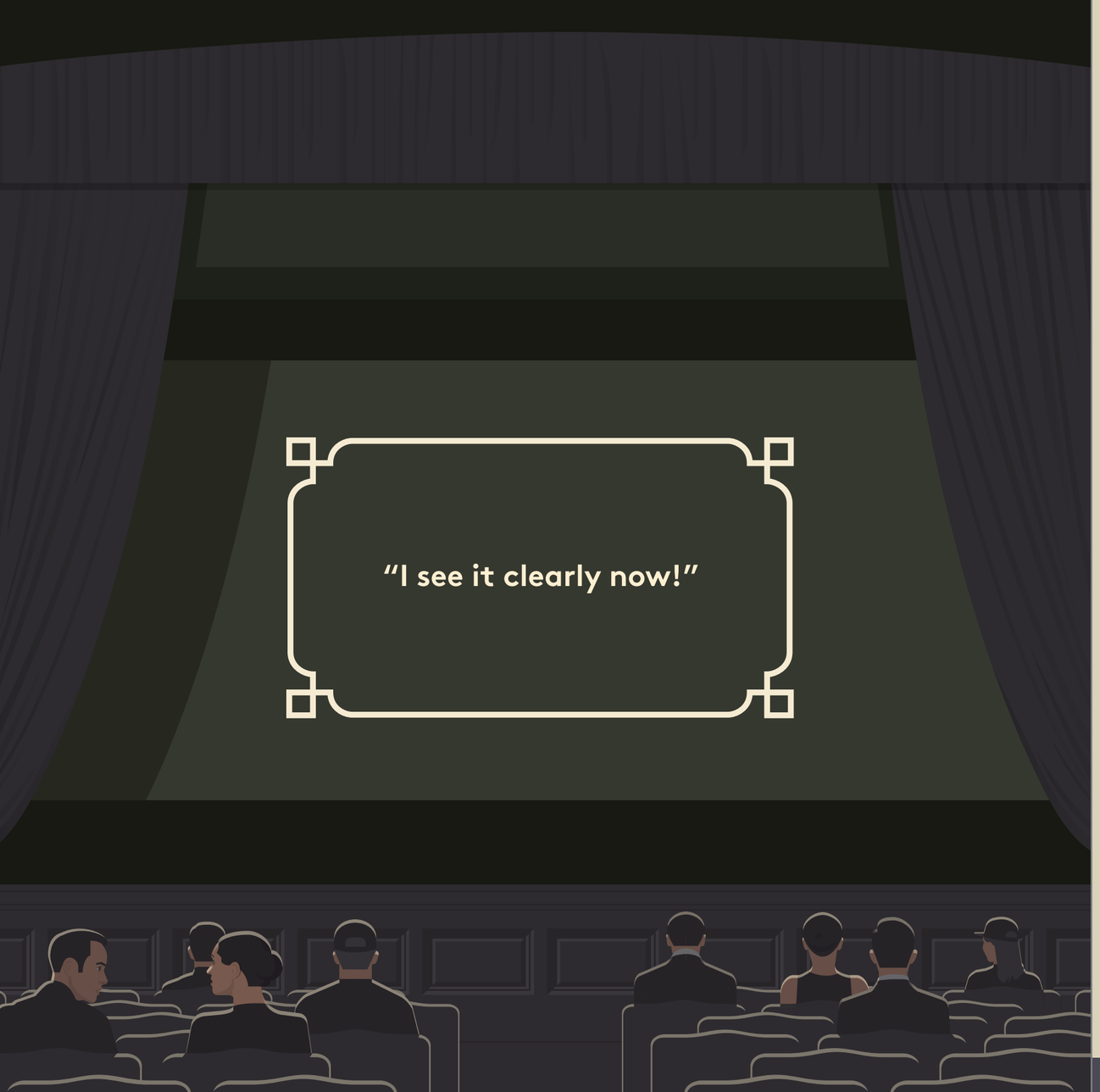


IN A CAFÉ AND AT THE FAIR

The **first movies** were shown in theatres, concert halls, cabaret clubs, bars, shop buildings and wooden sheds, or under canvas at fairs and markets. Wherever lots of people gathered, in fact. In breaks in the show, audiences would be entertained by singers and acrobats, and sometimes by magicians.

MOVIES ON THE ROAD

Peripatetic cinematographs went out into the country, moving from small town to small town. Owners would buy movies singly (most of them recorded in a single take), integrate them into a revue programme and show them until the film wore out.

Screenings of the same movie varied in length, in accordance with the speed at which the cinematograph’s crank was turned. Sometimes the projectionist went so fast that the audience had to shout for him to slow down.

SILENT AND BLACK AND WHITE?

Some movies were colourized or given a certain tone. When the action was set at night, the length of film in question was made dark blue. Sunny days were made yellow, and love scenes were given a pink hue.

When silent movies were screened, there was no silence to be had: the projector whirred, and spectators laughed, whistled and clapped. In larger towns, noise from the street would penetrate the auditorium. Most screenings were accompanied by recorded or live music. In smaller rooms, the only musician was a piano player; where the room was large enough, there might be a whole orchestra. What’s more, all kinds of sounds were produced behind the screen: when a flash of lightning lit up the screen, a blow on a sheet of metal would produce a clap of thunder.

When a movie was telling a complex story, the projectionist or his assistants might explain to the audience what they were watching. Sometimes they would even speak the dialogues, trying to synchronize their words with the movements of the actors’ lips.

FANTASY MADE REAL AND A KINGDOM OF SHADOWS

Thanks to the movies, many people got to see the sea, camels of the desert, the jungle or a large city for the first time. Moving pictures also showed familiar things in ways that made them look new. Everyone got the chance to see for themselves the seemingly impossible: the demolition of a wall which is then rebuilt by moving the film backwards, for instance. Although early movies attracted large audiences, they had critics, too. Some people were put off by the close-ups of faces, referred to as ‘mute giants’. Others objected to the way scenes were arranged, complaining of deception, foolishness and sensationalism. After seeing his first moving picture – in 1896, at the market in Nizhny Novgorod – Russian writer Maxim Gorky compared the experience with the stage play. He considered what he saw on screen as a grey, depressing kingdom of shadows. One movie he saw was by the Lumière brothers, in which a huge train rushing into a station appears to be about to crash into the audience. It was reported that at this many spectators jumped from their seats in terror.

A SLIPPERY SLOPE

Most cinema audiences were neither bored nor scared, however. Indeed, they were keen for ever more suspense and excitement. The filmmakers gave them what they asked for, including shots taken from moving trains and scenes apparently set there. The stories were not always funny. Trains were raided by robbers, who killed engine drivers in brutal fashion and shot passengers. Many parents, teachers, educators and journalists who saw such things were horrified at the thought of the effect they would have on children. After all, even adults sometimes forgot that what they were watching was only a movie. Would young cinemagoers grow up to be thugs and thieves? Such fears resulted in restrictions on what could be screened where and for whom. Before the First World War, in the Dual Monarchy of Austria-Hungary a prohibition was placed on screenings of moving pictures near churches or educational institutions to protect the morals of schoolchildren and young people.

The US Nickelodeon movie theater Daisy opened in 1913 on Beale Street, Memphis, Tennessee – and it still stands today. Many of the actors and musicians who appeared there were African-American. As the stage and projection screen were right next to the entrance, latecomers would find themselves in front of the audience.

AT A MOVIE FOR A NICKEL

Buildings that from the early twentieth century held regular screenings of moving pictures became known as **cinemas** (e.g. in the UK) and **movie theaters** (e.g. in the US). In ancient Greek, *kinema* means 'movement'. A cinema was a place where the pictures presented should appear to move, as in real life.

NICKELODEONS

The name of the first American movie theaters contained the word 'nickel', the original admission charge. A nickel was a small coin with a value of five cents (a twentieth of a dollar). You could buy a pound of sugar for about the same price. The component 'odeon' was taken from the roofed theatres of ancient Greece, so adding lustre to the business.

BREAD OR A MOVIE?

In France, the cinema admission charge was one franc, about as much as two large loaves of white bread. In the Prague cinemas of the pre-World War I period, the cheapest cinema seat cost 40 hellers, with half-price admission for children on workdays. The price was less than a two-pound loaf of rye bread. Not everyone could afford it, however; in those days, an unskilled worker's daily pay was a little over three crowns.

CINEMA AS INSTITUTION

The US Nickelodeon chain began to earn good money. Movie theaters became part of a lucrative industry comprising the production, distribution and screening of moving pictures. Factories produced the necessary materials for movie studios and theaters, most notably chemicals, cameras and projectors. Movies shot at a studio would be processed in a laboratory before individual copies were sent out to lenders – as movie theatre proprietors no longer owned the films they screened. These were lent out for a fixed period at an agreed price or a proportion of the profit from admission tickets sold. A proportion of profits was used to fund the production of new movies.

DANGERS AT THE CINEMA

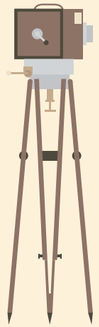
Because movie film was made of celluloid, which is highly flammable, film screenings were a fire hazard. The first major disaster occurred in Paris at the end of the nineteenth century, when a fire claimed 117 lives after a wooden building with a paperboard roof and cloth décor was set alight by a torch used as a source of light for the projector.

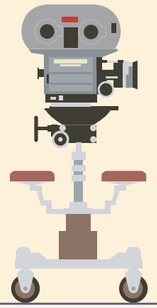
REMOVE YOUR HAT AND SWITCH OFF YOUR PHONE

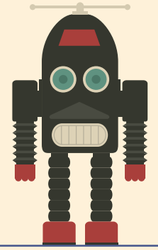
Before entering the auditorium, gentlemen were required to extinguish their cigars and ladies to remove their hats, many of which were embellished with artificial flowers and plaster fruit that would block the view of other spectators. Such things are no longer worn today, yet we are still required to be considerate of others – by desisting from use of our mobile phones while the movie is in progress.

WITH A MOVIE CAMERA

The device used for the making of moving pictures is a movie camera. The first movie cameras were heavy boxes in which the film was advanced mechanically. To ensure that he maintained a regular rhythm when turning the crank, the camera operator would measure the movement by his heartbeat or by singing a song. The latest movie cameras use machine-learning algorithms that assess the situation before beginning to film.







1900

The movie cameras used by the first moviemakers stand firmly on a tripod. They record only what is right in front of them, as though looking at a stage.

1920

A camera mounted on a cart or the arm of a crane can travel around things and people or look at them from above. It shows a scene as a continuous space and follows the movements of actors within it, while alerting the viewer to important details.

1940

The **hand-held camera** has become part of military hardware. As they shoot footage of fighting, cameramen are as mobile as their soldier subjects.

Lightweight hand-held cameras have made it possible for moviemakers to document events in the preparation of which they were not involved. In France, such documentary film-making is known as **cinema verité** (truthful cinema).

1960

The animator and **computer graphics** pioneer John Whitney experiments with control of a camera's movements using a gun director taken from World War II anti-aircraft ordnance.

When shooting 'by hand', it has been difficult to hold the image steady. Then the **Steadicam** camera stabilizer is born. By attaching the camera to the body and supplementing it with a system of weights, stable shots can be achieved even when the camera operator is mounting stairs.

1980

Camera movement is controlled digitally. Data are stored in a computer memory, allowing their exact repetition at any time.

Video cameras record pictures and sound on magnetic tape that can be wiped and reused. When the surface of the tape is scratched, on playback there is noise disturbance (hiss) and image disruption (dropouts).

2000

Moviemakers begin to use **digital cameras** that store images with a resolution of 1920 x 1080 pixels. Twenty years later, smartphones in common use will achieve comparable resolution.

2020

WHICH ONE TO CHOOSE?

Do you want to make movies as well as watch them but don't know which camera is best for you? The answer is simple.

Buy one that is within your budget. To start filming, you don't need expensive equipment.

To start with, the camera in a smartphone is enough. The results may not reach the cinema, but they will be good enough to upload on YouTube, for instance.

THE OLDEST CAMERA

The word camera comes from Latin. It can refer to a small box or a whole room. In a small room, cover the window with black paper and make a tiny hole in the paper with a needle. The rays of light that pass through the hole will make an inverted image on the wall opposite of what is outside.

LENSES

Where light enters a movie camera or a digital video camera, we find the **photographic lens – an assembly of optical lenses and a diaphragm**. The function of a photographic lens can be compared with that of the human eye – it makes it possible to focus on objects both near and far. But where the human eye engages muscles to focus, the optical lenses in a camera move backwards and forwards.

FILMING DIGITALLY

The big advantage of **digital filming** is the absence of expensive film that needs developing, fixing, drying and copying. Copied data are identical to the original, as well as being easy to transfer. What's more, there is no danger of scratching during projection. This isn't to say that a digital image is always better than an image on a strip of film, however.

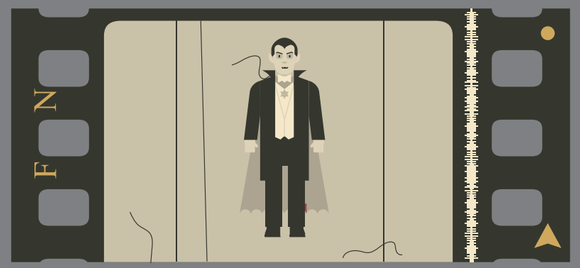
DOTS AND GRAIN

The light that passes through the photographic lens of a **digital video camera** reaches a sensor chip of tiny dots, where it is turned into an electric signal. Data is then stored on a hard disk or a memory card as a long row of ones and zeros. The resolution of the digital image, given by the number of dots (pixels), is of great importance. When a film is screened at a cinema in 2K resolution, the picture is about 2000 pixels wide and over 1000 pixels high, making a total of over two million graphic dots. The fewer the dots, the less detail we see.

A **movie camera** captures light in a different way. Rays fall on a thin layer of gelatine and chemical substances, where they are transformed. While a digital image is composed of a given number of dots, every shot on film is a photograph in itself, formed from microscopic chemical grains.

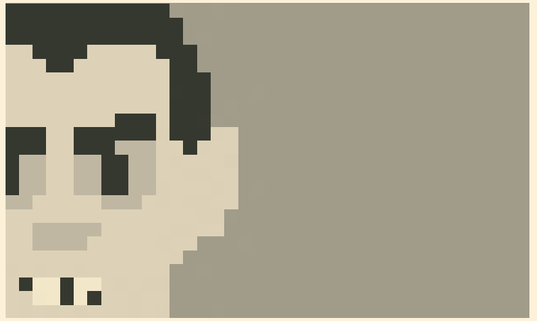
A FRAME ON A STRIP OF FILM

A **strip of film** is an excellent recording medium. The problems begin when the film is shown to an audience. After a few screenings, scratches begin to appear on its surface, and these scratches reduce the quality of the image.



STRIP OF FILM WITH AUDIO TRACK AND PERFORATION AT THE EDGES

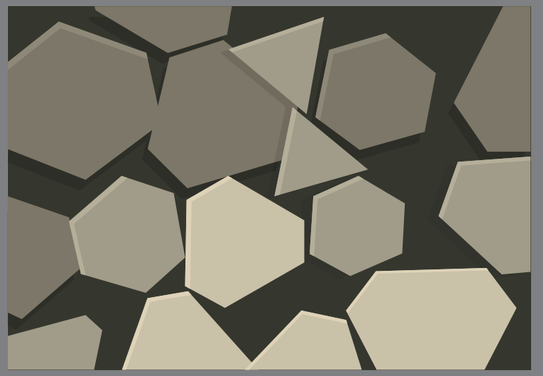
In many cases we can tell that an image is digitally produced only at **low resolution**.



A **digital image** is composed of a raster (grid) of dots. The number of dots and the distance from which we look at them determine the quality of the picture.

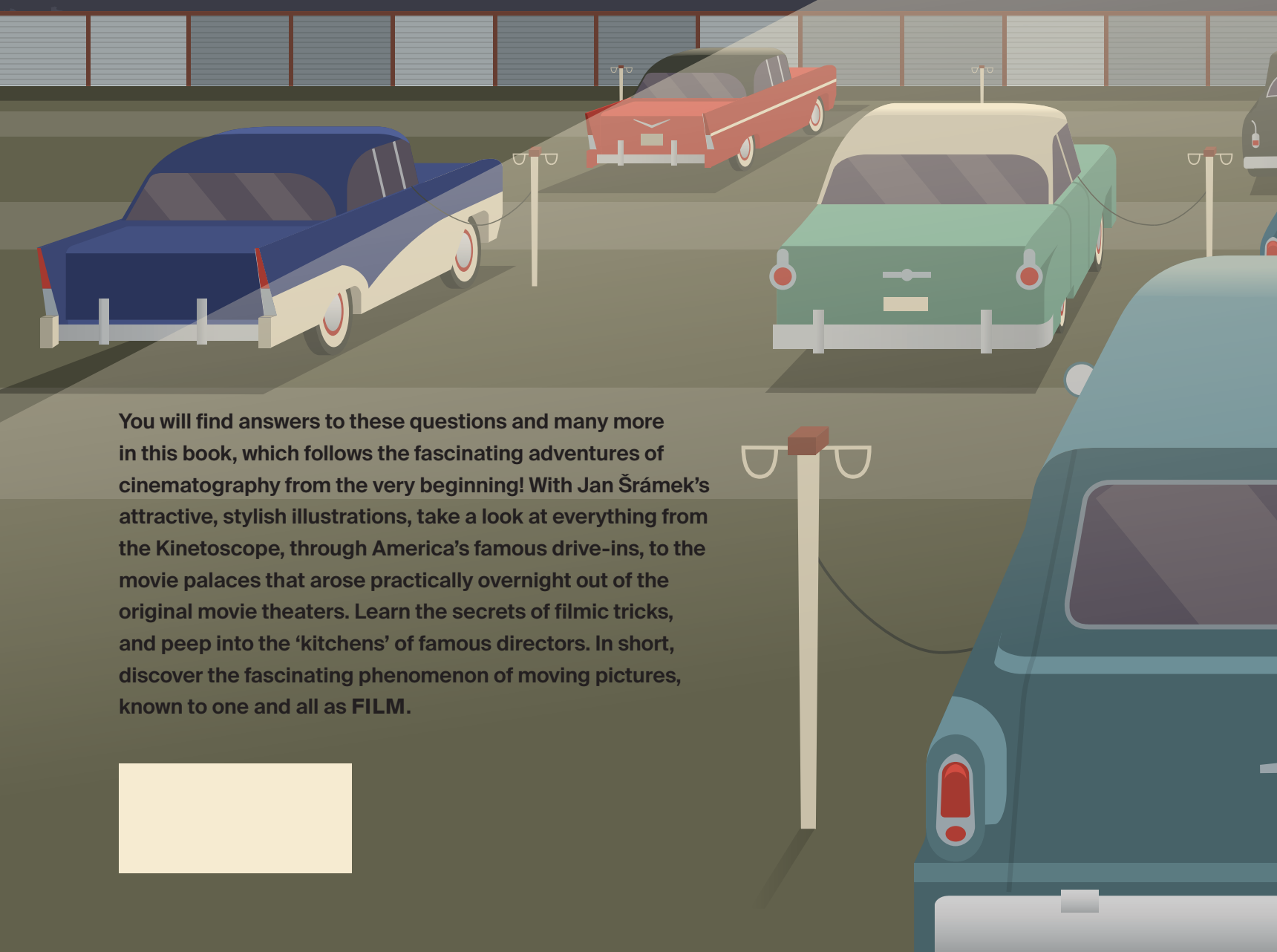
Image graininess is a natural property of sensitive film materials.

Silver halide crystals in a film emulsion, magnified by an electron microscope.



ENJOYING FILM

Did you know that the first movies were only about half a minute long, and that the viewer had to watch them standing up, through a peephole in a cabinet? Or that in Colombia the most popular cinema snack is not popcorn but roast leaf-cutter ants? And do you know what a medium shot is? Or a cameo? Or a MacGuffin? Or a mise en scène?



You will find answers to these questions and many more in this book, which follows the fascinating adventures of cinematography from the very beginning! With Jan Šrámek's attractive, stylish illustrations, take a look at everything from the Kinetoscope, through America's famous drive-ins, to the movie palaces that arose practically overnight out of the original movie theaters. Learn the secrets of filmic tricks, and peep into the 'kitchens' of famous directors. In short, discover the fascinating phenomenon of moving pictures, known to one and all as FILM.