1933

SELECTIONS ADAPTED FROM *FILM*

1 Film and Reality

Film resembles painting, music, literature, and the dance in this respect—it is a medium that may, but need not, be used to produce artistic results. Colored picture post cards, for instance, are not art and are not intended to be. Neither are a military march, a true confessions story, or a strip tease. And the movies are not necessarily film art.

There are still many educated people who stoutly deny the possibility that film might be art. They say, in effect: "Film cannot be art, for it does nothing but reproduce reality mechanically." Those who defend this point of view are reasoning from the analogy of painting. In painting, the way from reality to the picture lies via the artist's eye and nervous system, his hand and, finally, the brush that puts strokes on canvas. The process is not mechanical as that of photography, in which the light rays reflected from the object are collected by a system of lenses and are then directed onto a sensitive plate where they produce chemical changes. Does this state of affairs

justify our denying photography and film a place in the temple of the Muses?

It is worth while to refute thoroughly and systematically the charge that photography and film are only mechanical reproductions and that they therefore have no connection with art—for this is an excellent method of getting to understand the nature of film art.

With this end in view, the basic elements of the film medium will be examined separately and compared with the corresponding characteristics of what we perceive "in reality." It will be seen how fundamentally different the two kinds of image are; and that it is just these differences that provide film with its artistic resources. We shall thus come at the same time to understand the working principles of film art.

THE PROJECTION OF SOLIDS UPON A PLANE SURFACE

Let us consider the visual reality of some definite object such as a cube. If this cube is standing on a table in front of me, its position determines whether I can realize its shape properly. If I see, for example, merely the four sides of a square, I have no means of knowing that a cube is before me, I see only a square surface. The human eye, and equally the photographic lens, acts from a particular position and from there can take in only such portions of the field of vision as are not hidden by things in front. As the cube is now placed, five of its faces are screened by the sixth, and therefore this last only is visible. But since this face might equally well conceal something quite different—since it might be the base of a pyra-

mid or one side of a sheet of paper, for instance—our view of the cube has not been selected characteristically.

We have, therefore, already established one important principle: If I wish to photograph a cube, it is not enough for me to bring the object within range of my camera. It is rather a question of my position relative to the object, or of where I place it. The aspect chosen above gives very little information as to the shape of the cube. One, however, that reveals three surfaces of the cube and their relation to one another, shows enough to make it fairly unmistakable what the object is supposed to be. Since our field of vision is full of solid objects, but our eye (like the camera) sees this field from only one station point at any given moment, and since the eye can perceive the rays of light that are reflected from the object only by projecting them onto a plane surface—the retina—the reproduction of even a perfectly simple object is not a mechanical process but can be set about well or badly.

The second aspect gives a much truer picture of the cube than the first. The reason for this is that the second shows more than the first—three faces instead of only one. As a rule, however, truth does not depend on quantity. If it were merely a matter of finding which aspect shows the greatest amount of surface, the best point of view could be arrived at by purely mechanical calculation. There is no formula to help one choose the most characteristic aspect: it is a question of feeling. Whether a particular person is "more himself" in profile than full face, whether the palm or the outside of the hand is more expressive, whether a particular

mountain is better taken from the north or the west cannot be ascertained mathematically—they are matters of delicate sensibility.

Thus, as a preliminary, people who contemptuously refer to the camera as an automatic recording machine must be made to realize that even in the simplest photographic reproduction of a perfectly simple object, a feeling for its nature is required which is quite beyond any mechanical operation. We shall see later, by the way, that in artistic photography and film, those aspects that best show the characteristics of a particular object are not by any means always chosen; others are often selected deliberately for the sake of achieving specific effects.

REDUCTION OF DEPTH

How do our eyes succeed in giving us three-dimensional impressions even though the flat retinae can receive only two-dimensional images? Depth perception relies mainly on the distance between the two eyes, which makes for two slightly different images. The fusion of these two pictures into one image gives the three-dimensional impression. As is well known, the same principle is used in the stereoscope, for which two photographs are taken at once, about the same distance apart as the human eyes. This process cannot be used for film without recourse to awkward devices, such as colored spectacles, when more than one person is to watch the projection. For a single spectator it would be easy to make a stereoscopic film. It would only mean taking two simultaneous shots of the same incident a couple of inches apart and

then showing one of them to each eye. For display to a larger number of spectators, however, the problem of stereoscopic film has not yet been solved satisfactorily—and hence the sense of depth in film pictures is extraordinarily small. The movement of people or objects from front to back makes a certain depth evident—but it is only necessary to glance into a stereoscope, which makes everything stand out most realistically, to recognize how flat the film picture is. This is another example of the fundamental difference between visual reality and film.

The effect of film is neither absolutely two-dimensional nor absolutely three-dimensional, but something between. Film pictures are at once plane and solid. In Ruttmann's film *Berlin* there is a scene of two subway trains passing each other in opposite directions. The shot is taken looking down from above onto the two trains. Anyone watching this scene realizes, first of all, that one train is coming toward him and the other going away from him (three-dimensional image). He will then also see that one is moving from the lower margin of the screen toward the upper and the other from the upper toward the lower (plane image). This second impression results from the projection of the three-dimensional movement onto the screen surface, which, of course, gives different directions of motion.

The obliteration of the three-dimensional impression has as a second result a stronger accentuation of perspective overlapping. In real life or in a stereoscope, overlapping is accepted as due merely to the accidental arrangement of objects, but very marked cuts result from superimpositions in a plane image. If

a man is holding up a newspaper so that one corner comes across his face, this corner seems almost to have been cut out of his face, so sharp are the edges. Moreover, when the three-dimensional impression is lost, other phenomena, known to psychologists as the constancies of size and shape, disappear. Physically, the image thrown onto the retina of the eye by any object in the field of vision diminishes in proportion to the square of the distance. If an object a yard distant is moved away another yard, the area of the image on the retina is diminished to one-quarter of that of the first image. Every photographic plate reacts similarly. Hence in a photograph of someone sitting with his feet stretched out far in front of him the subject comes out with enormous feet and much too small a head. Curiously enough, however, we do not in real life get impressions to accord with the images on the retina. If a man is standing three feet away and another equally tall six feet away, the area of the image of the second does not appear to be only a quarter of that of the first. Nor if a man stretches out his hand toward one does it look disproportionately large. One sees the two men as equal in size and the hand as normal. This phenomenon is known as the constancy of size. It is impossible for most people—excepting those accustomed to drawing and painting, that is, artificially trained—to see according to the image on the retina. This fact, incidentally, is one of the reasons the average person has trouble copying things "correctly." Now an essential for the functioning of the constancy of size is a clear three-dimensional impression; it works excellently in a stereoscope with an ordinary photograph, but hardly at all in a film

picture. Thus, in a film picture, if one man is twice as far from the camera as another, the one in front looks very considerably the taller and broader.

It is the same with the constancy of shape. The retinal image of a table top is like the photograph of it; the front edge, being nearer to the spectator, appears much wider than the back; the rectangular surface becomes a trapezoid in the image. As far as the average person is concerned, however, this again does not hold good in practice: he *sees* the surface as rectangular and draws it that way too. Thus the perspective changes taking place in any object that extends in depth are not observed but are compensated unconsciously. That is what is meant by the constancy of form. In a film picture it is hardly operative at all—a table top, especially if it is near the camera, looks very wide in front and very narrow at the back.

These phenomena, as a matter of fact, are due not only to the reduction of three-dimensionality but also to the unreality of the film picture altogether —an unreality due just as much to the absence of color, the delimitation of the screen, and so forth. The result of all this is that sizes and shapes do not appear on the screen in their true proportions but distorted in perspective.

LIGHTING AND THE ABSENCE OF COLOR

It is particularly remarkable that the absence of colors, which one would suppose to be a fundamental divergence from nature, should have been noticed so little before the color film called attention to it. The reduction of all colors to black and white, which does not leave even their brightness values untouched (the reds, for instance, may come too dark or too light, depending on the emulsion), very considerably modifies the picture of the actual world. Yet everyone who goes to see a film accepts the screen world as being true to nature. This is due to the phenomenon of "partial illusion" (see p. 24). The spectator experiences no shock at finding a world in which the sky is the same color as a human face; he accepts shades of gray as the red, white, and blue of the flag; black lips as red; white hair as blond. The leaves on a tree are as dark as a woman's mouth. In other words, not only has a multicolored world been transmuted into a black-and-white world, but in the process all color values have changed their relations to one another: similarities present themselves which do not exist in the natural world; things have the same color which in reality stand either in no direct color connection at all with each other or in quite a different one.

The film picture resembles reality insofar as lighting plays a very important role. Lighting, for instance, helps greatly in making the shape of an object clearly recognizable. (The craters on the surface of the moon are practically invisible at full moon because the sun is perpendicular and no shadows are thrown. The sunlight must come from one side for the outlines of the mountains and the valleys to become visible.) Moreover, the background must be of a brightness value that allows the object to stand out from it sufficiently; it must not be patterned by the light in such a way that it prevents a clear survey of the object by

making it appear as though certain portions of the background were part of the object or vice versa.

These rules apply, for example, to the difficult art of photographing works of sculpture. Even when nothing but a "mechanical" reproduction is required, difficulties arise which often puzzle both the sculptor and the photographer. From which side is the statue to be taken? From what distance? Shall it be lighted from the front, from behind, from the right or left side? How these problems are solved determines whether the photograph or film shot turns out anything like the real object or whether it looks like something totally different.

DELIMITATION OF THE IMAGE AND DISTANCE FROM THE OBJECT

Our visual field is limited. Sight is strongest at the center of the retina, clearness of vision decreases toward the edges, and, finally, there is a definite boundary to the range of vision due to the structure of the organ. Thus, if the eyes are fixed upon a particular point, we survey a limited expanse. This fact is, however, of little practical importance. Most people are quite unconscious of it, for the reason that our eyes and heads are mobile and we continually exercise this power, so that the limitation of our range of vision never obtrudes itself. For this reason, if for no other, it is utterly false for certain theorists, and some practitioners, of the motion picture to assert that the circumscribed picture on the screen is an image of our circumscribed view in real life. That is poor psychology. The limitations of a film picture and the limitations of

sight cannot be compared because in the actual range of human vision the limitation simply does not exist. The field of vision is in practice unlimited and infinite. A whole room may be taken as a continuous field of vision, although our eyes cannot survey this room from a single position, for while we are looking at anything our gaze is not fixed but moving. Because our head and eyes move we visualize the entire room as an unbroken whole.

It is otherwise with the film or photograph. For the purpose of this argument we are considering a single shot taken with a fixed camera. We shall discuss traveling and panorama shots later. (Even these aids in no sense replace the natural range of vision nor are they intended to do so.) The limitations of the picture are felt immediately. The pictured space is visible to a certain extent, but then comes the edge which cuts off what lies beyond. It is a mistake to deplore this restriction as a drawback. I shall show later that on the contrary it is just such restrictions which give film its right to be called an art.

This restriction (though also the lack of any sense of the force of gravity, see p. 32) explains why it is often very difficult to reproduce intelligibly in a photograph the spatial orientation of the scene depicted. If, for example, the slope of a mountain is photographed from below, or a flight of steps from above, the finished picture surprisingly will often give no impression of height or depth. To represent an ascent or descent by purely visual means is difficult unless the level ground can somehow be shown as a frame of reference. Similarly there must be standards of comparison to show the size of anything. To show the

height of trees or of a building, for instance, human figures may be introduced beside them. A man in real life looks all round him when he is walking; and even supposing he is going up a mountain path with his eyes fixed on the ground at his feet, he still has a sense of the general lie of the surrounding country in his mind. This perception comes to him chiefly because his muscles and his sense of balance tell him at every instant exactly in what relation his body stands to the horizontal. Hence he can continually assess correctly the visual impression of the slanting surface. In contrast to such a man is one who is looking at a photograph or screen picture. He must depend upon what his eyes tell him without any assistance from the rest of his body. Moreover, he has only that part of the visual situation which is included within the confines of the picture to help him get his bearings.

The range of the picture is related to the distance of the camera from the object. The smaller the section of real life to be brought into the picture, the nearer the camera must be to the object, and the larger the object in question comes out in the picture—and vice versa. If a whole group of people is to be photographed, the camera must be placed several yards away. If only a single hand is to be shown, the camera must be very close, otherwise other objects besides the hand will appear in the picture. By this means the hand comes out enormously large and extends over the whole screen. Thus the camera, like a man who can move freely, is able to look at an object from close to or from a distance—a self-evident truth that must be mentioned inasmuch as from it is derived an important artistic device. (Variations of range and size

can also be obtained by lenses of different focal lengths. The effects are similar but involve no change of the distance from the object and, therefore, no change of perspective.)

How large an object appears on the screen depends partly on the distance at which the camera was placed from it, but partly also on how much the picture is enlarged when the finished film is projected. The degree of enlargement depends on the lens of the projection machine and on the size of the theater. A film may be shown in whatever size is preferred—as small as the pictures in a child's magic lantern or gigantic as in a movie palace. There is, however, an optimum relationship between the size of the picture and its distance from the spectators. In a motion-picture theater the spectator sits relatively far away from the screen. Hence the projection must be large. But those watching pictures in a living room are quite close to the screen and therefore the projection may be much smaller. Nevertheless, the range of sizes used in practice is wider than is altogether desirable. In large theaters the projection is larger than in small ones. The spectators in the front rows naturally see a much larger picture than those in the back rows. It is, however, by no means a matter of indifference how large the picture appears to the spectator. The photography is designed for projection of a particular relative size. Thus in a large projection, or when the spectator is near the picture, movements appear more rapid than in a small one, since in the former case a larger area has to be covered than in the latter. A movement which seems hurried and confused in a large picture

may be perfectly right and normal in a smaller one. The relative size of the projection, moreover, determines how clearly the details in the picture are visible to the spectator; and there is obviously a great difference between seeing a man so clearly that one can count the dots on his tie, and being able to recognize him only vaguely—more especially since, as has been pointed out, the size in which the object is to appear is used by the film director to obtain a definite artistic effect. Thus by the spectator's sitting too near or too far away a most disagreeable and obvious misrepresentation of what the artist intended may arise. Up to the present it is impossible to show a film to a large audience so that each member of it sees the picture in its right dimensions. After all, spectators must, as far as possible, be placed one behind the other; because when the rows of seats extend too far sideways, those sitting at the ends will see the picture distorted—and that is even worse.

ABSENCE OF THE SPACE-TIME CONTINUUM

In real life every experience or chain of experiences is enacted for every observer in an uninterrupted spatial and temporal sequence. I may, for example, see two people talking together in a room. I am standing fifteen feet away from them. I can alter the distance between us; but this alteration is not made abruptly. I cannot suddenly be only five feet away; I must move through the intervening space. I can leave the room; but I cannot suddenly be in the street. In order to reach the street I must go out of the room, through

the door, down the stairs. And similarly with time. I cannot suddenly see what these two people will be doing ten minutes later. These ten minutes must first pass in their entirety. There are no jerks in time or space in real life. Time and space are continuous.

Not so in film. The period of time that is being photographed may be interrupted at any point. One scene may be immediately followed by another that takes place at a totally different time. And the continuity of space may be broken in the same manner. A moment ago I may have been standing a hundred yards away from a house. Suddenly I am close in front of it. I may have been in Sydney a few moments ago. Immediately afterward I can be in Boston. I have only to join the two strips together. To be sure, in practice this freedom is usually restricted in that the subject of the film is an account of some action, and a certain logical unity of time and space must be observed into which the various scenes are fitted. For time especially there are definite rules which must be obeyed.

Within any one film sequence, scenes follow each other in their order of time—unless some digression is introduced as, for example, in recounting earlier adventures, dreams, or memories. Within such a flashback, again, time passes naturally, but the action occurs outside the framework of the main story and need not even stand in any precise time relationship ("before" or "after") to it. Within individual scenes the succession of separate events implies a corresponding sequence of time. If, for example, a "long shot" of a man raising a revolver and firing it is shown,

the raising and firing cannot be shown again afterward as a close-up. To do so would be to make a sequence of events that were in fact simultaneous.

That things are happening simultaneously is of course most simply indicated by showing the events in one and the same picture. If I see someone writing at a table in the foreground and someone else in the back playing the piano, the situation is self-explanatory as far as time is concerned. This method is, nevertheless, often avoided for artistic reasons and the situation composed of separate shots.

If two sequences of the action are to be understood as occurring at the same time they may simply be shown one after the other, in which case, however, it must be obvious from the content that simultaneity is intended. The most primitive way of giving this information in a silent film is by printed titles. ("While Elise was hovering between life and death, Edward was boarding the liner at San Francisco.") Or something of this sort: A horse race has been announced to begin at 3:40. The scene is a room full of people who are interested in the race. Someone pulls out a watch and shows the hands pointing to 3:40. Next scene—the racecourse with the horses starting. Events occurring simultaneously may also be shown by cutting up the various scenes and alternating the sections so that the progress of the different events is shown by turns.

Within the individual scenes the time continuum must never be disturbed. Not only must things that occur simultaneously not be shown one after the other, but no time must be omitted. If a man is going from the door to the window, the action must be shown in its entirety; the middle part, for example, must not be suppressed and the spectator left to see the man starting from the door and then with a jerk arriving at the window. This gives the feeling of a violent break in the action, unless something else is inserted so that the intervening time is otherwise occupied. Time may be dropped in the course of a scene only to produce a deliberately comic effect—as, for instance, when Charlie Chaplin enters a pawnbroker's shop and emerges instantly without his overcoat. Since to show complete incidents would frequently be dull and inartistic, because superfluous, the course of the action is sometimes interrupted by parts of scenes taking place simultaneously somewhere else. In this way it can be arranged to show only those moments of each event which are necessary for the action without patching together things that are incoherent in time. Apart from this, each scene in a good film must be so well planned in the scenario that everything necessary, and only what is necessary, takes place within the shortest space of time.

Although the time continuum within any individual scene must remain uninterrupted, the time relationship between scenes that occur at different places is undefined in principle so that it may be impossible to tell whether the second scene takes place before, during, or after the first. This is very clearly shown in many educational films where there is no connection in time but only in subject. As, for example: ". . . not only rabbits but also lions may be tamed." First picture—performing rabbits. Within this scene the continuity of time must be observed. Second picture—lion taming. Here too the continuity of time must not be

broken. These two scenes, however, have no sort of time connection. The lion taming may go on before, during, or after the performance with the rabbits. In other words, the time connection is of no consequence and therefore does not exist. Similar situations arise occasionally in narrative films.

If sequences are meant to follow each other in time, the content of the film must make this relationship clear, precisely as in the case of simultaneity; because the fact that two sequences follow each other on the screen does not indicate in itself that they should be understood as following each other in time.

Film can take far greater liberties with space and time, however, than the theater can. To be sure, in the theater it is also permissible to have one scene occur at quite a different time and place from the preceding scene. But scenes with a realistic continuity of place and time are very long-drawn-out and allow of no break. Any change is indicated by a definite interruption—the curtain is lowered or the stage darkened. It might, nevertheless, be imagined that an audience would find it disturbing to see so many disconnected events on one and the same stage. That this is not so is due to a very curious fact: the illusion given by a play (or film) is only partial. Within any particular scene value is laid on naturalism. The characters must talk as people do in real life, a servant like a servant, a duke like a duke. (But even here we have this restriction: the servant and the duke are to talk clearly and sufficiently loudly, that is really, too clearly and loudly.) An ancient Roman lamp must not be put to light a modern drawing room nor a telephone by

Desdemona's bed. Yet the room has only three walls —the fourth, the one that should intervene between the stage and the audience, is missing. Any audience would laugh if a piece of scenery fell down and revealed the wall of the room to be nothing but painted canvas, or if the crack of a shot were heard some seconds before the revolver was fired. But every audience takes it for granted that on the stage a room has only three walls. This deviation from reality is accepted because the technique of the stage demands it. That is to say, the illusion is only partial.

The stage is, so to speak, in two different but intersecting realms. It reproduces nature, but only a part of nature—separate in time and space from the actual time and space of the "house," where the audience is located. At the same time, the stage is a showcase, an exhibit, the scene of action. Hence it comes into the domain of the fictitious. The component of illusion is relatively strong in theater because an actual space (the stage) and an actual passage of time are given. The component of illusion is very slight when we are looking at a picture—for example, a photograph lying on the table in front of us. The photograph, like the stage, represents a particular place and a particular time (a moment of time), but it does not do this as is done in the theater with the aid of an actual space and an actual passage of time. The surface of the picture *signifies* a pictured space; and that is so much of an abstraction that the picture surface in no way gives us the illusion of actual space.

Film—the animated image—comes midway between the theater and the still picture. It presents space, and it does it not as on the stage with the help of real

space, but, as in an ordinary photograph, with a flat surface. In spite of this, the impression of space is for various reasons not so weak as in a still photograph. A certain illusion of depth holds the spectator. Again, in contrast with the photograph, time passes during the showing of a film as it does on the stage. This passage of time can be utilized to portray an actual event, but is, nevertheless, not so rigid that it cannot be interrupted by breaks in time without the spectator feeling that these breaks do violence to it. The truth is that the film retains something of the nature of a flat, two-dimensional picture. Pictures may be displayed for as long or short a time as one pleases, and they can be shown next to one another even if they depict totally different periods in time.

Thus film, like the theater, provides a partial illusion. Up to a certain degree it gives the impression of real life. This component is all the stronger since in contrast to the theater the film can actually portray real —that is, not simulated—life in real surroundings. On the other hand, it partakes strongly of the nature of a picture in a way that the stage never can. By the absence of colors, of three-dimensional depth, by being sharply limited by the margins on the screen, and so forth, film is most satisfactorily denuded of its realism. It is always at one and the same time a flat picture post card and the scene of a living action.

From this arises the artistic justification for what is called montage. It was pointed out above that film, which records real situations on strips of celluloid that may be joined together, has the power of placing in juxtaposition things that have no connection at all

in real time and space. This power was, however, primarily a purely mechanical one. One might expect the spectator to be overcome by a physical discomfort akin to seasickness when watching a film that had been composed of different shots. For example: In Scene 1 a man is discovered ringing the front doorbell of a house. Immediately following appears a totally different view—the interior of the house with a maid coming to answer the door. Thus the spectator has been jerked violently through the closed door. The maid opens the door and sees the visitor. Suddenly the viewpoint changes again and we are looking at the maid through the visitor's eyes—another breakneck change within the fraction of a second. Then a woman appears in the background of the foyer and in the next moment we have bridged the distance separating us from her, and we are close beside her.

It might be supposed that this lightning juggling with space would be most unpleasing. Yet everyone who goes to the movies knows that actually there is no sense of discomfort, but that a scene such as the one just described can be watched with perfect ease. How can this be explained? We have been talking as though the sequence had actually taken place. But it is not real and—which is of the greatest importance—the spectators have not the (complete) illusion of its reality. For, as has already been said, the illusion is only partial and film gives simultaneously the effect of an actual happening and of a picture.

A result of the "pictureness" of film is, then, that a sequence of scenes that are diverse in time and space is not felt as arbitrary. One looks at them as calmly as

one would at a collection of picture post cards. Just as it does not disturb us in the least to find different places and different moments in time registered in such pictures, so it does not seem awkward in a film. If at one moment we see a long shot of a woman at the back of a room, and the next we see a close-up of her face, we simply feel that we have "turned over a page" and are looking at a fresh picture. If film photographs gave a very strong spatial impression, montage probably would be impossible. It is the partial unreality of the film picture that makes it possible.

Whereas the theater stage differs from real life only in that the fourth wall is missing, the setting of the action changes, and the people talk in theatrical language, the film deviates much more profoundly. The position of the spectator is continually changing since we must consider him located at the station point of the camera. A spectator in the theater is always at the same distance from the stage. At the movies the spectator seems to be jumping about from one place to another; he watches from a distance, from close to, from above, through a window, from the right side, from the left; but actually this description, as has been said, is altogether misleading, because it treats the situation as physically real. Instead, pictures taken from the most various angles follow one another, and although the camera position had to be changed continually when they were taken, the spectator is not obliged to duplicate all this commotion.

Many people who are accustomed to clear thinking will feel that this theory of "partial illusion" is vague and equivocal. Is not the very essence of illusion that it should be complete? Is it possible, when one is

surrounded by one's own friends and sitting in a chair at home in New York, to imagine oneself in Paris? Can one believe that one is looking at a room when a moment ago a street was there? Yes; one can. According to an outdated psychology that is still deeply rooted in popular thought, an illusion can be strong only if it is complete in every detail. But everyone knows that a clumsy childish scribble of a human face consisting of two dots, a comma, and a dash may be full of expression and depict anger, amusement, or fear. The impression is strong, though the representation is anything but complete. The reason it suffices is that in real life we by no means grasp every detail. If we observe the expression on somebody's face, we are far from being able to say whether he had blue eyes or brown, whether he was wearing a hat or not, and so on. That is to say, in real life we are satisfied to take in essentials; they give us all that we need to know. Hence if these essentials are reproduced we are content and obtain a complete impression that is all the more artistic for being so strongly concentrated. Similarly, in film or theater, so long as the essentials of any event are shown, the illusion takes place. So long as the people on the screen behave like human beings and have human experiences, it is not necessary for us to have them before us as substantial living beings nor to see them occupy actual space—they are real enough as they are. Thus we can perceive objects and events as living and at the same time imaginary, as real objects and as simple patterns of light on the projection screen; and it is this fact that makes film art possible.

ABSENCE OF THE NONVISUAL WORLD OF THE SENSES

Our eyes are not a mechanism functioning independently of the rest of the body. They work in constant coöperation with the other sense organs. Hence surprising phenomena result if the eyes are asked to convey ideas unaided by the other senses. Thus, for example, it is well known that a feeling of giddiness is produced by watching a film that has been taken with the camera traveling very rapidly. This giddiness is caused by the eyes participating in a different world from that indicated by the kinesthetic reactions of the body, which is at rest. The eyes act as if the body as a whole were moving; whereas the other senses, including that of equilibrium, report that it is at rest.

Our sense of equilibrium when we are watching a film is dependent on what the eyes report and does not as in real life receive kinesthetic stimulation. Hence certain parallels which are sometimes drawn between the functioning of the human eye and the camera—for instance, the comparison between the mobility of the eyes and that of the camera—are false. If I turn my eyes or my head, the field of vision is altered. Perhaps a moment ago I was looking at the door; now I am looking at the bookcase; then at the dining-room table, then at the window. This panorama, however, does not pass before my eyes and give the impression that the various objects are moving. Instead I realize that the room is stationary as usual, but that the direction of my gaze is changing, and that that is why I see other parts of the motionless room. This is not the case in film. If the camera was rotated while the picture was being shot, the bookcase, table, window, and door will proceed across the screen when the picture is projected; it is they which are moving. For since the camera is not a part of the spectator's body like his head and his eyes, he cannot tell that it has been turned. He can see the objects on the screen being displaced and at first is led to assume that they are in motion. In Jacques Feyder's *Les Nouveaux Messieurs*, for example, there is a scene in which the camera passes rapidly along a long wall covered with posters. The result is that the wall seems to move past the camera. If the scene that has been photographed is very simple to understand, if it is easy to get one's bearings in it, the spectator corrects this impression more or less rapidly. If, for instance, the camera is first directed toward a man's legs and if it then pans slowly up toward his head, the spectator knows very well that the man did not float feet first past a stationary camera. Film directors, however, often turn or shift the camera for taking pictures that are not so easy to grasp, and then a sensation of drifting supervenes which may be unintentional and may easily make the audience feel dizzy. This difference between the movements of the eyes and those of the camera is increased because the film picture has, as was said above, a fixed limit whereas the field of vision of our eyes is practically unbounded. Fresh objects are continually appearing within the frame of the picture and then disappearing again, but for the eyes there is an unbroken space-continuum through which the gaze wanders at will.

Thus there is relativity of movement in film. Since there are no bodily sensations to indicate whether

the camera was at rest or in motion, and if in motion at what speed or in what direction, the camera's position is, for want of other evidence, presumed to be fixed. Hence if something moves in the picture this motion is at first seen as a movement of the thing itself and not as the result of a movement of the camera gliding past a stationary object. In the extreme case this leads to the direction of motion being reversed. If, for example, a moving car is filmed from a second one which is overtaking the first, the finished picture will show a car apparently traveling backward. It is, however, possible to make clear which movement is relative and which absolute by the nature and behavior of the objects shown in the picture. If it is obvious from the picture that the camera was standing on a moving car, that is, if parts of this car are seen in the picture, and, contrary to the landscape, they stay in the same place in the picture, the car will be perceived as moving and the surrounding landscape as stationary.

There is also a relativization of spatial coördinates—above, below, and so forth. To this are partly due the phenomena we described above in the section on the "Delimitation of the Image." A photograph of a slanting surface may not give an appearance of slope because there is no sensation of gravity to help the spectator realize "up and down." It is impossible to feel whether the camera was standing straight or was placed at an angle. Therefore, as long as there is nothing to indicate the contrary, the projection plane is perceived as vertical. If the camera is held over a bed to show from above the head of a man lying in it, the impression may easily be given that the man is

sitting upright and that the pillow is perpendicular. The screen is vertical, although since the camera was turned downward it actually represents a horizontal surface. This effect can be avoided only by showing enough of the surroundings in the picture to give the spectator his bearings.

As regards the other senses: No one who went unprejudiced to watch a silent film missed the noises which would have been heard if the same events had been taking place in real life. No one missed the sound of walking feet, nor the rustling of leaves, nor the ticking of a clock. The lack of such sounds (speech, of course, is also one of them) was hardly ever apparent, although they would have been missed with a desperate shock in real life. People took the silence of the movies for granted because they never quite lost the feeling that what they saw was after all only pictures. This feeling alone, however, would not be sufficient to prevent the lack of sound being felt as an unpleasant violation of the illusion. That this did not happen is again connected with what was explained above: that in order to get a full impression it is not necessary for it to be complete in the naturalistic sense. All kinds of things may be left out which would be present in real life, so long as what is shown contains the essentials. Only after one has known talkies is the lack of sound conspicuous in a silent film. But that proves nothing and is not an argument against the potentialities of silent film, even since the introduction of sound.

It is much the same with the sense of smell. There may be people who if they see a Roman Catholic service on the screen imagine that they can smell in-

cense; but no one will miss the stimulus. Sensations of smell, equilibrium, or touch are, of course, never conveyed in a film through direct stimuli, but are suggested indirectly through sight. Thence arises the important rule that it is improper to make films of occurrences whose central features cannot be expressed visually. Of course a revolver shot might occur as the central point of a silent film; a clever director could afford to dispense with the actual noise of the shot. It is enough for the spectator to see the revolver being fired and possibly to see the wounded man fall. In Josef von Sternberg's *The Docks of New York* a shot is very cleverly made visible by the sudden rising of a flock of scared birds.

2 *The Making of a Film*

It has been shown above that the images we receive of the physical world differ from those on the movie screen. This was done in order to refute the assertion that film is nothing but the feeble mechanical reproduction of real life. The analysis has furnished us with the data from which we can hope to derive now the principles of film art.

By its very nature, of course, the motion picture tends to satisfy the desire for faithful reports about curious, characteristic, exciting things going on in this world of ours. The first sensation provided by film in its early music-hall days was to depict everyday things in a lifelike fashion on the screen. People were greatly thrilled by the sight of a locomotive approaching at top speed or the emperor in person riding down *Unter den Linden*. In those days, the pleasure given by film derived almost entirely from the subject matter. A film art developed only gradually when the movie makers began consciously or unconsciously to cultivate the peculiar possibilities of cinematographic technique and to apply them toward the creation of artistic productions. To what extent the use of these means of expression affects the large audiences remains a moot question. Certainly box-office success depends even now much more on what is shown than on whether it is shown artistically.

The film producer himself is influenced by the strong resemblance of his photographic material to reality. As distinguished from the tools of the sculptor and the painter, which by themselves produce nothing resembling nature, the camera starts to turn and a likeness of the real world results mechanically. There is serious danger that the film maker will rest content with such shapeless reproduction. In order that the film artist may create a work of art it is important that he consciously stress the peculiarities of his medium. This, however, should be done in such a manner that the character of the objects represented should not thereby be destroyed but rather strengthened, concentrated, and interpreted. Our next task will be to bring examples to show how the various peculiarities of film material can be, and have been, used to achieve artistic effects.

ARTISTIC USE OF PROJECTIONS UPON A PLANE SURFACE

In an earlier section I showed what conditions arise from the fact that in a photographic representation