Richard Blank, *Film&Light*

Richard Blank (*1939) studied Philosophy in Cologne, Vienna and Munich. He wrote radio plays, published several books (amongst others: *Sprache und Dramaturgie, Jenseits der Brücke – Bernhard Wicki, ein Leben für den Film*) and made documentaries for television. Since 1978 he has been writing and directing movies for television and cinema. His movie *Prinzenbad*, in which Bernard Wicki played his last major role, was the only German entry at the Venice Film Festival in 1994.

Richard Blank

Film & Light

The story of Film is the story of Light

Including a DVD with Film Quotations

Alexander Verlag Berlin

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AN EXPLANATORY NOTE

There is a whole series of books containing rules and technical instructions for film lighting. These rules and regulations are taught in film schools today. Interviews with international cinematographers confirm their validity.
There are basically only two essays on the history of film lighting, an English one by Peter Baxter (1975, 23 pages) and a German one by W. Samlowski/H. J. Wulff (2002, 15 pages).

The history of film lighting by Richard Blank begins with the Californian glass studios of the time around 1900 and ends now. In addition to the recourse to secondary literature, films which are typical for the development of film lighting are analysed with great precision, with details of the scenes/times in the respective film. There is a DVD with numerous quotations accompanying the book.

The book not only observes the sequence of historical facts. Fundamental insights into the structure of the historical development of film result from this consideration of lighting. The rule book valid today is identical with the lighting of the Hollywood film, above all as it developed as a result of DeMille's great successes between 1915 and 1925. These rules were recorded by the Californian studios when labour laws were codified when they became important corporations in the middle of the nineteen-twenties and sought to prevent individual "experiments".

In Europe, particularly in Germany, a completely different film lighting was implemented at this time. The look at German directors who went to Hollywood at the end of the nineteen-twenties, either of their own volition or as emigrants is therefore of great interest. Did they conform (Fritz Lang)? fail (Murnau)?, or were they able to largely preserve their own personal vision, their own perception of film lighting (Ophüls)?

There are styles which do not abide by the light of 'classical' Hollywood films, such as Italian Neo-realism, the nouvelle vague or "New Hollywood". Where are the differences, how are they justified?

And there are, naturally, the films of Eisenstein, Orson Welles, Bunuel, Lars von Trier and others, who do not subject their personal vision to any rule book and whose films are fundamentally distinguished from 'classical' Hollywood by their lighting.

This book follows the historical development of film lighting and reveals astonishing structures which are not just crucial for the history of film but also for work in film today.

SUBJECT MATTER

Cinema used to be called "Lichtspielhaus" or "Lichtspieltheater" in Germany. This can be translated as "theatre of light".

Film literature is full of books about directors, actors, studios and their films, reporting with particular enthusiasm on content and the diverse genres, often alluding to weltanschauung or to a basic attitude of a pessimistic or optimistic kind. Textbooks are also available providing information on camera work, cutting, light, architecture, sound etc. Structural analyses or historical perspectives are a rarity.

Thus there are essentially only two short essays on developments in film lighting[1]. Historical aspects or comparative analyses are nowhere to be found in the twenty statements regarding film lighting in the anniversary edition of "Film Dienst" 2007[2].

The image and the pictorial space which shows me the two dimensional medium, depend to a large degree on the light. At the same time the light in a cinematic image is a background phenomenon. Perceptive psychology uses this term, when one perceives something without registering it particularly. The audience concentrates on scenery and people. They take the pictures as a given, as "true", without taking further notice of the light and its technical prerequisites.

'Light' may make us think about the beginning of the biblical story of creation or we may keep to something more banal, such as the painstaking arrangement of the spotlights during filming, for instance, which often takes several hours for one single shot – the significance of light for film is fundamental.

The way in which the world is seen and reproduced in film is deciphered by the way the light is viewed. Not only the time of day, but also the design of the space, the effect of the scenery, the mood of the actors, are altered by different treatments of the light. Different perceptions of "reality" become visible by looking at the light.

The difficult of talking about 'reality' in images is shown in the history of art. The two- dimensional paintings of the Middle Ages compose a different pictorial space from the perspective painting of the Renaissance. Rembrandt's paintings have little to do with the paintings of Van Gogh and these both differ from the paintings of Picasso.

The question about the reality of the image is crucial. The awareness of this is sharpened by looking at a different culture. For a long time in the Arab world one was "ruled by the conviction that the representation of people and animals was to be condemned as a blasphemous outrage against the creative sovereignty of God." [3]

This old taboo points to the significance of the pictures and to the responsibility of those, who take pictures of the world and display them. Particularly in a time of digital snapshots, in which everything around us is photographed en masse, the awareness of this responsibility has to be kept alive. The light in the pictures tells us something about the light of the world, how it is seen and photographed.

The method:

I refer to secondary literature, text books and interviews for the rules of lighting. The historical development and its trends become obvious by looking at specific examples, films which are exemplary and trend-setting.

DILETTANTISM

It is night-time. A tall old tree stands in the middle of a field on a hill. We are filming the Golgotha scenes for the film "St. Matthew Passion".

I suggest lighting a semi-circle with a radius of approximately ten metres around the tree, so that the approaching people come out of the blackness into the light and when they leave disappear in the blackness again.

This seemed to be an interesting idea, particularly for the entrance of Judas. I also had black margins in mind for the subsequent images: the trial of Jesus was played on the stage of a local theatre. I wanted to remove every bit of scenery from the stage, except for two white pillars and a chandelier. The chandelier was to be switched off and the entire background to be without any kind of light. The blackness of the stage would combine with the blackness around the tree, segments of which were illuminated and would form a stylistic unity.

A lot is possible on a theatre stage, not for night filming in an old tree however. "If you don't want an open fire or torches, then there's only one possibility: light from the moon." My cameraman Franz Rath suggests 'fabricating' moonlight with a few floating light balloons, which light the surroundings of the tree within a large radius in a quasi-natural manner.

Every cameraman learns this in the first term of his training: the main light has to have a 'natural' source, which is supported or imitated by spot lights. Anyone dispensing with this will prove to be a dilettante. My intention, to use neither the moon, nor open fires is pure nonsense in view of the universalised rule book of cinematic lighting art.

THE RULES

Anyone visiting a film studio to watch filming, will be amazed by the sheer number of spot lights, lamps, lighting fixtures which are standing around among the scenery and which are arranged, moved, positioned 'somehow" without one, as a layman, being able to recognise any kind of system. When someone has come to see the actors working, he will soon become inpatient. The setting up of the light takes time, a long time, far longer than the work with the actors. At the same time the lighting technicians work according to rules which have evolved in the course of film history and are quasi universally valid, today.

Every scene has a main light, the 'guiding light', "a light source, which influences and determines the directed lighting of the lighting as a whole."[1] The Americans call this the 'key light'.

This 'key light' is determined by a contextual criterion. The set with scenery and actors should look 'natural'. This will be achieved if one "allows oneself to be led by the underlying natural source of light which one wants to imitate"[2] when lighting the set."

Contemporary camera men, senior lighting technicians and other specialists provide us with information:

"For day interiors windows are the most logical light source… When it is very early in the morning or very late in the afternoon, light coming into the room will be at a very low angle, almost parallel."[3]

The light in the day interiors thus has a real 'natural' source, sunlight. This is imitated or intensified by the spotlights. We are talking about 'afternoon' or 'morning' here. What happens if the scene is set at midday?

Vilmos Zigmond (the camera man from "The Long Goodbye", 1973 and "The River", 1984) admits that he feels compelled to 'cheat': "I cheat a lot in daylight because I never think of the sun as being as high overhead as it is in California in the summer."[4] At the same time he takes pains to keep his concept within a realistic context and continues: "I assume the location is in Sweden or Ireland, where the sun travels low around the sky even in the summer months."[4]

In the same breath he admits "cheating", to assure himself that he is ultimately not filming in either Sweden or Ireland, but rather in California: "So for me day is 10 A.M. or 3 P.M, but it is never noon."[4]

Questions about light go beyond the scope of technical matters. The efforts to find a naturalistic 'truth' at all costs are astounding. Zigmond could simply say: I place the spotlights in such a way that the light falls diagonally, almost parallel to the floor of the interior/room, - the 'cheating' happens first by means of a geographical change – Sweden or Ireland -, is then taken back and is then repositioned in a time - 10 o'clock in the morning or 3 o'clock in the afternoon – in order to be corrected truthfully at the end: although the scene takes place at midday, the sun has to come through the window diagonally.

Somersaults of this kind show the concern for truth and naturalness which goes beyond all technical questions and which emphasises the ba-

sic principle: film light imagines a 'natural' source, which appears in such a form that the viewer can perceive it to be true.

Allen Daviau (camera man from "E.T.", 1983) stresses: "The intensity of the window has to be realistic enough, that you miss that there is nothing out there."[5] and he warns against too large an interior because the viewer will no longer accept the window as the single source of the key light. "I don't feel that you can do any kind of large-scale interior on a stage and have people believe it".[5]

In whatever way the lighting is set up, the viewer has to be able to perceive a 'natural' source, take it to be true – in this case for the key light coming through the window.

Additional light for objects, people and their movements in the interior depends on the key light: "Any additional light will follow this pattern." [6]

At night the 'natural' light source in interiors is self-evident. It is the lamp in the set, which in contrast to the daylight-sun has the advantage of being a realistic part of the scenery: "The practical sources visible in the frame."[7]

Just as sunlight in the daytime, at night the light of the lamp visible in the picture is supplemented and extended by spotlights.

"So you have a lamp in the corner of a living room; you may light the chair with the light coming from one side of the lamp and you may light the couch from another side and you may light the flowers on the on the coffee table may be from above. So you will end up rising several units that one source… Then, when people are moving around it complicates it even further. Of course you have to make many liberties with just justifying your sources."[8]

These comments by the great lighting expert Richmond Aguilar ("Easy Rider", 1969, "Paper Moon", 1973, "The Postman always rings twice", 1980) are clear and simple for the expert. The functions of the spotlights around the set appear anything other than clear and intelligible to an amateur watching the filming. And not only to the amateurs! I as a director have long given up any hope of fully understanding the complicated arrangement of the spotlights. When one sees the model or the completed film later on, one is amazed: the light of the whole set ap-

pears to come from the lamps in the room in a completely natural manner: "Any time you have a source of light in the frame."[9]

What effect is intended with the additional light which is following the pattern of the key light?

Having established the position, direction and intensity of the key light: "one reaches all the other rules almost inevitably."[10]

In order to lighten the shadows thrown by the key light, one positions a full light which is generally of weaker strength, it:" is subordinate to the key light."[11]

A further unit of light has a balancing effect on the entire set. It is the 'background' or 'room' light, which lights parts of the set: "in order to balance out the contrasts present in the scene."[12]

A third supplement to the key light is cited here: A 'kicker light', also called a 'kick light' or 'edge light', is used to separate a part of the set or a person optically from the background. Thus in a portrait: "the kicker light shines from the back onto the subject's head".[13]

The equipment appears relatively clear and straightforward up to this point. However, when we continue, the rule book quickly develops into that superb chaos which confronts any non-expert when going onto the set:

In Hilmar Mehnert's standard work one can read about everything else which serves to supplement the key light: 'clothes light', 'frontal light', 'front light', 'eyelight, 'cross' and 'back light'[14] or more specific lighting such as the lighting of candlelight scenes, fireside scenes and the special light when a cigarette is lit.[15] There is also 'figure lighting' practised primarily in Hollywood, which allows a person to be clearly visible even in darkness.

As in Hilmar Mehnert's book, technical questions are treated in the utmost detail in "Painting with light", a text book by the camera man John Alton, written in 1949 and recently reprinted[16]. The rules of "Hollywood photography" are explained in meticulous detail. Thus there are examples for "sunrise"[18], "window shots"[19], "moonlight and window"[20] or "fire scenes"[21].

Whatever lighting is used, the preservation of the 'natural' effect of the key light is always of prime concern. Disputes between individual experts are played out while still conforming to these maxims. Consequently Mehnert assumes that in an interior care has to be taken that only one shadow direction is created, something which Achim Dunker criticises. He points out that different 'natural' light sources can throw different shadows on a set.[22] While Dunker, who is opposed to all too rigid rules, declares succinctly: "there are endless possibilities for illuminating an image"[23] he remains within the context of the 'natural' light source when things get more specific. In the line of argument against Mehnert he establishes a second light source in a room, other than the light which is coming through the window: light which shines into the room from a terrace and throws a shadow onto the curtain. With all the unconventionality which he demands from lighting – "freedom", "creativity"[24] – he stays with the 'natural' light source, even if there are two of them.[25]

Hilmar Mehnert bases his teaching on a kind of law of nature: "The main light source in nature is the sun; it follows that there is a defined shadow. This fact explains that even in interiors, one unconsciously takes the preponderance of one light source for granted. It follows, for this reason and for aesthetic reasons that one single shadow that is well-defined in its direction is perceived to be particularly natural."[26]

Stop! What was that about my tree on the hill, where I did not like the moonlight?

My request to do without the 'constitutional' key light entirely must not just seem like dilettantish chitchat to the dyed in the wool lighting specialist with all the hitherto cited points in mind but rather must appear to be a serious breach of the rules.

Which rules dictate how the the lighting is set up for exterior scenes at night? If one is lucky, one can find real light sources even for filming outside at night. The camera man Jordan Cronenweth ("The Color Purple", 1984) recommends in any event searching the location for light sources, which serve a similar function to the lamp in an interior: "I would test how the available light looks, and then I would attempt to

light the scene with the available light sources appearing to do the lighting."[27]

If one can not find any real lamps there to show in the picture, James Wong Howe (camera man in "The Rose Tattoo", 1955, "Picnic", 1955 or "Funny Lady", 1974), recommends arranging the light so that it seems as if it were coming from an original source: "In lighting streets I would have my lights coming from on high as if there were street-lamps."[28] In other words street lamps are simulated, to create the impression that the film is showing a 'naturally' illuminated environment.

If in reality, no lamps can be present, outdoors for example or when the camera is positioned at a high vantage point in a town, moonlight remains as the only 'natural' light source. This is imitated nowadays, as mentioned at the beginning, by floating light balloons.

In the past one had other resources. James Crabe (camera man in "Rocky", 1976, "The Karate Kid", 1984) turns to a really uncomplicated means of lighting a city landscape at night: "Maybe to light a whole city block with a little crosslight of moonlight…you come close to being able to create your own moon."[29]

And when one is filming outside in open country and does not have our lovely balloons yet, then one improvises as in the street without street lamps: one assumes the moon to be: "somewhere up there" and: "then you have to light in a way that you do not know where the light comes from. It is just kind of a general soft light that floods in."[30]

Lighting technology has developed in connection with the advancing changes in film material. One can read up on the technical innovations and the constantly improving refinements in the copying process in the relevant text books. The sensitivity of celluloid has increased considerably in the last few years and progress in this field is still being made.

Today the photosensitivity of digital video material even offers the opportunity of using only the available light and of filming without any additional lighting. The term "natural" has a double meaning in field of film however: the given 'naturalness' and the 'naturalness' which is to be generated or created during filming. Achim Dunker points out that little has been gained from using the new technology, at least in the professional field. Film lighting is always "lighting design" and this is of little

help when a motif has 'enough light' for a particular material.[31] Thus one can only generate space in the two-dimensional medium by means of the light: "Light and shadow give the audience the decisive impression of the dimension of the space." The light can alter the space: "Different lighting designs lead to different optical depths."[32]

However the design of the lighting is always subject to the maxims of the regulations described above: the key light should have a 'natural' source and everything which is arranged additionally is directed towards this light, the key light. Only the 'natural' light source conveys the 'natural', 'realistic effect' to the two-dimensional image. Jost Vacano, (camera man, "Die verlorene Ehre der Katharina Blum", 1975, "Das Boot", 1981, "Die unendliche Geschichte", 1984) stresses: "I always try to start with realistic lighting."[33]

The design of the space by means of the light may have to be adapted to suit the set: this goes without saying for Axel Block (camera man, "Danni", 1983, "Der Kinoerzähler", 1993): "The fact that one lamp is burning here and another burning there, does not have to be a coincidence, you can furnish the room accordingly."[34]

As regards all technical questions, the rule book of lighting is subject to a contextual principal which is expressed with verve by Jost Vacano: "I am a fanatical proponent of a certain realism … the audience should have the impression, they are experiencing the scene themselves."[35]

The film offers the audience the illusion of reality by means of the right lighting. Eduardo Sorro (Patrice Leconte's camera man) expressly advocates "the acceptance of the natural light….Otherwise the illusion is destroyed."[36]

The illusion of accepting the image as reality depends largely on the "right" mood being produced by the light. In his book on the technique of film lighting, Thomas Gans devotes a special chapter to the "Mood and atmosphere".[37] At the same time he refers to another "work book", which gives detailed information for moods such as "afraid", "lonely", "threatening", "evil", "heroic", etc. [38]

The rule book which I have drafted from different text books and interviews is regarded today as being universally valid. I have read hundreds of pronouncements on lighting by cameramen. Sometimes there are variations on the theme, slight deviations in the system, even aggression towards the rigid rules, the basic principles of which remained untouched by this. The truth is that in practice, as we will see as the book progresses, only very rarely are any objections raised. And when, for example, the camera man Gernot Roll ("Heimat", 1981 ff, "Kaspar Hauser", 1992, "Der bewegte Mann", 1993) responds to the question regarding the "laws of light" by saying: "they do not exist", "I don't allow myself to be confined to any (kind of) principles"[39] then I have to admit that I had not noticed this in his films. The only exemption to the rules is that one can see the "rim" in his kicker light, now and then. He abides by the eighth wonder of the world which was his discovery (The Chinese sun always shines from below"[40]) and places the light from below in such a way that the actors' heads are endowed with a kind of gloriole. They are presumably grateful to him because they are able to stay in one place for some time due to lack of space to move.

All these rules – what is really behind them? How did they come to be? What has been their historical development since the beginnings of cinema at the turn of the 20th century? The literature on the history of film light is sparse. In this the authors mostly offer a comprehensive account in the titles to their works. The essay "Vom Sichtbarmachen der kunstvollen Gestaltung: Geschichte des Filmlichts" (English: On making artistic design visible: a history of film lighting) by Wolfgang Samlowski and Hans J. Wulff[41] has fifteen pages in all and the essay "On the history and ideology of film lighting "[42] by Peter Baxter to which the aforementioned authors often refer, is twenty three pages long. Both essays cite Barry Salt [43] several times as one of the standard works of the history of film.

The significance of film lighting is evidently being neglected or misjudged. This is all the more astonishing, as is emphasised by the Russian cameraman Anatoli Golownja "the essence of the work of the cameraman"[44] even "the essence of film art" lies in the light, as Stefano Masi says. Basically, every phase of filming is associated with light in some

way. This begins with the picture being taken when the light falls through the objective onto the raw footage, which is then exposed and extends to the projection in the cinema or the broadcasting on television. Anyone thinking of this as banal will be amazed at the fascination which a 'simple' cinema projection was able to exert in the early years of film. In 1926 Rudolph Harms wrote: "a precisely defined surface offers itself to the eye in a space-free darkness with a precisely defined area in the direction of view, from which the most diverse light effects…emerge in a playful movement. One can observe these movements of light, if one watches the rays of light spreading from the window of the projection booth instead of watching the screen."[45]

A film director such as Josef von Sternberg refers to downright metaphysical dimensions when he speaks of the significance of film lighting: he calls the light the origin of all life, quoting the Bible – "Let there be light. And there was light." And continues: "There is nothing without light…the story of light is the story of life and the human eye is the first camera. It is shaped like a lens and the image which we see is standing on its head like in a camera – only our brains allow us to see it upright."[45]

Sternberg's claims may be somewhat isoteric for a consideration of the history of film lighting. Nevertheless they encourage us not to lose sight of the essentials among all the technical questions: the way the light is treated in the film has something to say about how one sees and portrays the world, how the world is put 'in a good light'.

THE GLASS STUDIO
Hollywood before 1915

The preoccupation with Hollywood dominates in the rare literature on the story of film light. The essay by Wolfgang Samlowski and Hans J. Wulff devotes barely a page to touching on the developments outside Hollywood and Baxter gives it even less space. The way to the rules of film lighting valid today is inseparably associated with the history of the Hollywood film.

The stylistic main features of this rule book become apparent in the last century in the Hollywood cinema of the twenties and are stipulated at the beginning of the sound film, in other words about 1930. Of course technical innovations came along and still do, however: "the lighting styles were established at the beginning of the Thirties and … were not only accepted as production standards but also largely standardised".[1]

In spite of the possibilities available for electric light – the gas lighting in theatres had already been replaced by electric light in the last quarter of the nineteenth century – at the beginning sunlight is used exclusively for film production. This does not just apply to the exteriors in the open air, far from it, the first studios built had glass roofs, the sun provided the set with light. The concentration of the American film industry in Hollywood is justified by Salt and others by the fact that up until 1900 more and more film people moved from the East of the country to sunny California in order to be able to make better use of the glass studios and at the same time, most importantly to be able to extend working hours.

Samlowski/Wulff systemise the time from the beginnings to the start of the sound film in a straightforward schedule with four phases: "which followed each other more or less chronologically:

Daylight shots without the use of resources;
Daylight shots with the use of natural, not electric resources;
Daylight shots with the use of additional artificial lighting;
Shots with the exclusive use of artificial lighting"[2]

Salt dates the first phase before 1899, the second before 1904.[3] He places the beginning of the last phase in 1914,[4] Baxter sees it as being a year later: "1915 is by all accounts the key year in the electrification of the California studios."[5]

Let us look more closely at the time before 1915 first, at phases 2 and 3, before we deal with the time after 1915, which is of the greatest interest for the development of the standard valid today.

At the turn of the century one began to influence and vary sunlight using simple technical means: mirrors were used as reflectors, and more than anything one invented ways of breaking the "harsh" sunlight and giving it a certain diffusion. To do this the glass roofs were partly covered with material or a special glass was installed, in which the light was dispersed relatively evenly: "The best glass…involved rows of tiny prismatic ridges which broke up the light that entered."[6]

Why did one do without electric light initially? It cannot have been the expense. The glass constructions were complicated and expensive.

Baxter suggests that one did not use electric light initially primarily because it had one decisive disadvantage in comparison to the old gaslight used in the theatre: using this one could not produce soft light, considering the prevailing technical conditions "The thick softness of gaslight,"[7] as it was known from the theatre, was more likely to be achieved by sunlight which was made "soft" with diffusion, than by: "The naked trashness by electricity." [8]

Due to the sun and the diffusers made of material and specially treated glass, the glass studios gave the set an even bright light, in which nothing could be accentuated or moved into the background. Shadows were avoided. The room had no kind of dimension and the characters had the same light as their surroundings. The light was not used "in the service of aesthetic objectives", until 1904/1905 "no recognisable awareness of the design possibilities of light existed."[10]

There can be absolutely no question yet of the most important criteria of today's rule book, the 'natural' light source within the set. "No apparent source." observed Baxter laconically.

The 1904 World's Fair in St. Louis is generally regarded as a first milestone for the electrification of the film studios. Among the many technical innovations exhibited there, there was also a new kind of lamp, the mercury vapour lamps from Cooper-Hewitt. They gave off a previously unknown light, which could be used in the studios as a supplement to sunlight. The camera man Fred J. Balshofer describes how his producer Lubin's old sunlight studio had been changed: "The small interiors had to be photographed during the sunny hours of the day which were rare in the stormy winter months … In the summer of 1907, Lubin …established a new and modern studio equipped with Cooper-Hewitt lighting."[12]

Initially, nothing was changed by this stylistically. The electric light supplemented the light available in order to be independent of the time of day and of the weather: "…to mitigate the interruptions caused by clouds, rain, the short daylight of winter."[13]

The new electric light was initially added to the sunlight primarily as frontal lighting, as a kind of total front lighting, until more and more studios installed additional arc lamps. These made it possible to light from above as well and, what is more, directly above the set.

In "The Classical Hollywood Cinema" [14], Kristin Thompson points out that in doing this one did not have to resort to the usual practices of the theatre stages with arc lamps. The arc lamp had long been a part of urban everyday life, the streets were lit by arc lamps at night.

Salt discovered that the arc lamps had already been installed partially for certain scenes in the film "The Seven Ages" by D.W. Porter.[15] However it was the arc lamp from the Kiegler Company, who developed an arc lamp especially for film studios in 1908, which first made the new technology a practicality for an increasing number of studios.

Now this is not going to initiate a discourse on physical and technical accomplishments. "Sunlight", "diffusers", "Cooper-Hewitt", "prismatic ridges", "arc lamps". What is crucial is that the light sources became more versatile and: "with the evolvement of the possibilities of electric lighting, the keenness to experiment increased".[16]

Up until then there could be no talk of a keenness to experiment. Harmonious lighting did not just make artistic effects impossible: "in the early days any conspicuous light effect was avoided... was considered as a professional error."[17]

Now, however, one began to work in a more sophisticated fashion with the possiblilities available. As early as 1909, shadows appeared in the film image for the first time, not by mistake but as a desired effect. Salt discovered this in a 1909 Vitagraph Studios film version of "Oliver Twist"[18]. Once there were lamps in the studios, one began, out of curiosity and the joy of experimentation, to detach them from their original function, the supplementation of sunlight and to use them in their own right. In this way back lighting was used and there were the first experiments in 'figure lighting', a light which was intended to lift the actor out of his surroundings and highlight him in particular. In doing this one did not yet think of outlining   the character against the background, one illuminated him from the front with some backlighting.

Now the artistic possibilities which were quasi piling up were foreshadowed until they could fully evolve after 1915 in the Hollywood cinema, first and foremost in the work of Davis Wark Griffith and later, in the twenties, in a completely different way in the films of Cecil B. DeMille.

The boom in the film industry which was still in its beginnings had a social background. At the beginning the cinema was a place of enjoyment for poor people. The bourgeoisie went to the theatre, not to the cinema. The cinemas were called "nickelodeons". "This cost one nickel - five cents - and the cinemas soon advanced to become the most popular form of mass entertainment, beating even the vaudevilles and the revues by miles."[19] "The first cinema theatre came into existence in Philadelphia in 1905 ... Five years later the enormous number of 10,000 had been reached."[20]

Toeplitz places this increase in connection with the wave of immigration to the USA which reached its climax shortly after the turn of the century. In 1907 over a million immigrants arrived, from Europe alone. Most of

these people had little money and sought their entertainment in the nickelodeon.

As takings grew not only were the film studios extended but more and more of an effort was made to compete against the theatres. The important thing was to win over the middle-class public. To them theatre was art, and cinema trash. Thus in the USA one started to bring film closer to art, to make it a new art form. The bourgeoisie turned to the cinema more and more. Contemporary film literature is also concerned to draw on artistic 'authorities' for the development of Hollywood.

The Swiss Adolphe Appia is often named, when the foundations of the burgeoning art of film lighting are described. Appia's "La mise en scène du drama Wagnerien" was published in Paris in 1895, his treatise «Die Musik und die Inszenierung » in Munich in 1899.

Appia: "The light is in the realms of performance what the music is in the score."[21] "The light is the mainstay of expression on the stage."[22]

What Appia postulates for the stage, Peter Baxter sees as a basis for a film light which not only – as previously – uniformly illuminates the set in the studio, but which advances to an essential means of film design.

Baxter repeatedly refers to Appia and regards his light theories as being associated with the developing 'realism' of the Hollywood film: "The projection of natural expressiveness in the cinema developing in accord with the theoretical exposition of Adolphe Appia."[23]

Samlowsky/Wulff also refer to Appia, who: "demanded a turning away from the uniform illumination of the whole stage…in addition to illuminated, visible zones also unlit, invisible zones".[24]

This new view of the stylistic possibilities of light means that the uniformly illuminated, glass studios are soon forgotten.

In connection with Appia, Baxter takes a look at the theatre of Max Reinhardt: "Under the leadership of Reinhardt the German theatre had learned how to build and light a scenery."[25] Sammlowski/Wulff note that Barry Salt considers Reinhard's theatre light to be a sign of things to come. Thus, for Salt, the first shadows designed in film are a reflex to Reinhardt's stage: "since this kind of performance was unknown in film until then."[26]

In addition to Appia, Baxter also counted Gordon Craig[27] among the grass roots for the change in film, although, in contrast to Appia, ques-

tions of light were not of primary interest to Craig. In this connection Baxter draws an arc from Reinhardt to Stanislawski: "The stagecraft of Appia and Craig…was taken up by Max Reinhardt at the Deutsches Theater and Stanislawsky at the Moscow Arts Theatre."[28]

The attempt by the cinemas of Hollywood to compete with the theatre is accompanied with knowledge gained from theatre history by the commentators and film historians. The argumentation has astonished me now and again. I will go into this in detail in another chapter.

However, after the turning point in lighting design, specific questions are waiting to be answered, it is important to address the issue of the Hollywood films between 1915 and 1930 directly. It is only in this period of time that one can talk about the 'art of lighting' and the rules which are still valid today are developed in that same time period.