

The Spiritual Way of Craftsmanship

Any creation of a picture has an aspect for craftsmanship and follows at the same time a destination of art. It is the same with photography. But the part concerning the craftsmanship is very closely related to the processes of physics and chemistry. The nature of science asks for reproducible results, of course this aspect has nothing to do with art. But science allows the photographer to dominate the grey tones in advance. This is a preassumptive concept which allows the photographer to control the outcome in advance but this is in contrast with creative feeling, without this a photo would appear like monotonic series production. The photographer has to incorporate these two completely different sides of his work. But the feeling how the grey tones within the print should represent the object in the real world is the bridge between these two worlds. Herein lies the chance to create art.

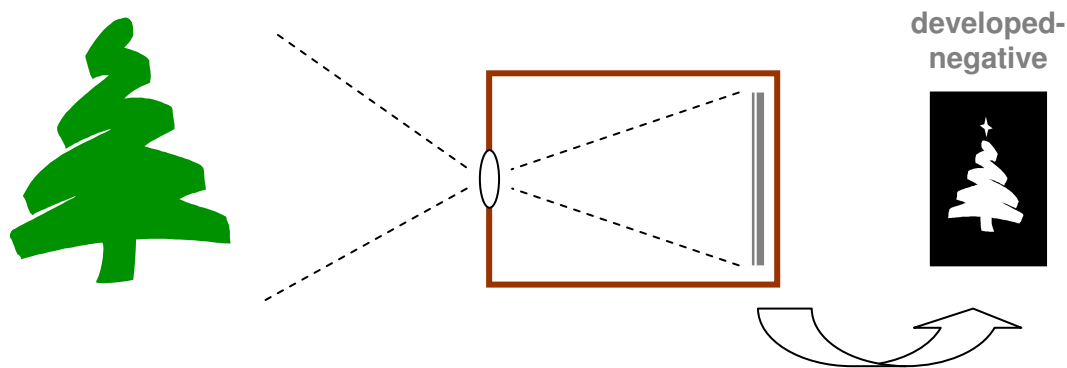
This essay deals with the technical procedures to translate the grey tones of the object into the grey tones of the print. This is the backbone particularly of black and white photography.

The level of the technical quality necessary of a decent expression of the print or picture is a matter of discussion. Prints exist which are taken under extreme conditions – i.e. reportages of war – which objects are so exciting that a technically low quality is accepted. But in general a minimum of quality should be kept. One basic rule of black and white photography sounds: all grey tones starting with pure white until the very black should be represented within the print. But in contrary there are good reasons to design the grey tone scale in a free manner. Nevertheless it is questioned if technical failures are much too often covered by arguments state of the art. An example: a musician plays something an excellent composer has created but with a violin out of tune. Would someone detect these technical defects? Surely!

The print is the destination. But the way towards to this destination is a vital part of any photographer. Anyone can choose his personal way. Here the Zone system of the late Ansel Adams (USA) is presented.

Thomas Weber, January 2007
(revised October 2008)

The very Beginning of Photographic Technique

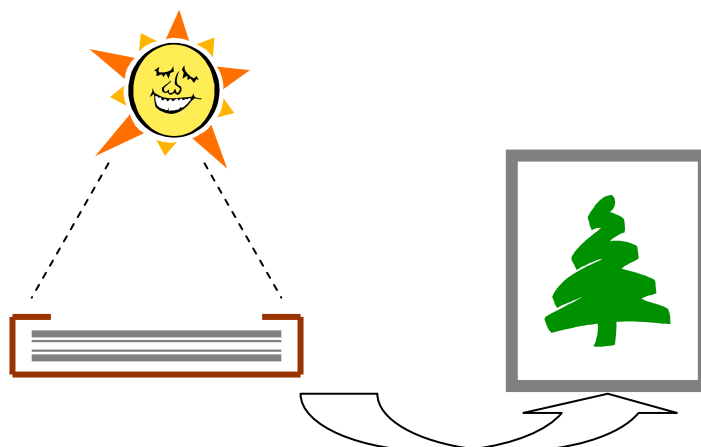


The beginning of photography is linked to the year 1839. Some years in advance Niépces managed to create the first print on a sheet of metal covered with asphalt with a certain sensitiveness for light, a street of Paris was shown in the picture. In 1839 existed two very different techniques: the one of Daguerre, based on Niépces and the one of William H. Fox Talbot. The first produced pictures similar to a diapositive but no copy was possible, the other one laid the fundament of the negative-positive procedure which is used up to the very day.

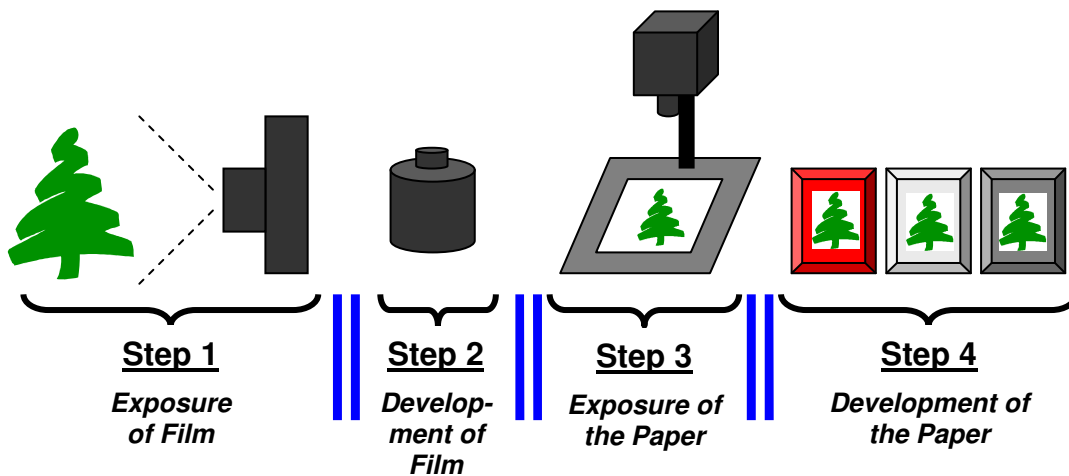
How did photography work in the beginning? Basis of all of this was the Camera Obscura. The first camera was a box with a lens at the one side and the light sensitive material at the opposite. The latter got very low sensitiveness in those days and therefore the exposure time took several minutes or hours and no shutter was needed.

The technique introduced by Daguerre produced single prints. By the very poisonous chemistry using evaporated mercury a lot of the photographers died in those early days. On the other hand Daguerrotypes produced sharp and precise pictures of high quality. But Talbot was using healthy chemistry but his results showed only negatives. In the end – 1839 – he got the right idea. He put the negative on top of an other unexposed paper and by this he got a positive out of it. Well, finally he had developed the modern negative-positive procedure which allowed him to produce as many copies as he or the customer wanted. Basically the contact printing survived until the very beginning of the 1930th.

William H. Fox Talbot had developed the classical negative-positive procedure which used up to the recent days. It is the basis of understanding of all modern procedures including the digital photography and movies likewise.



The System of Producing a Photographical Picture under Technically Point of View

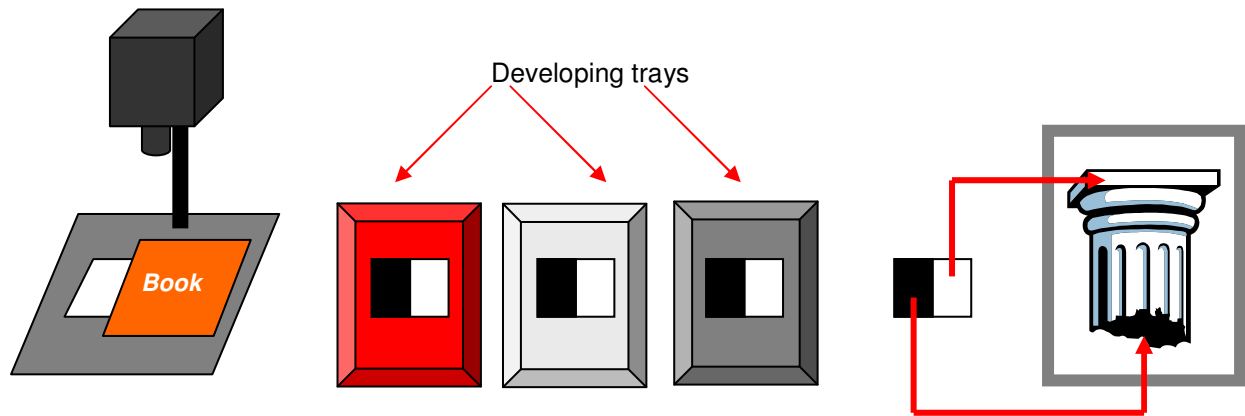


This essay does only deal with the technical point of view of producing the grey tones of the print. The aspect of creativeness of feeling for art is excluded. The offered technique is based on the Zone Systems of the late Ansel Adams – minor changes included.

In photography the production of a picture is a precisely defined procedure. This takes place in four steps like shown above. Any step is linked to the following by definition like a mathematical formula.

- Step 1** Measure the reflected light of an object and expose the film, (most modern cameras got a built in light meter).
- Step 2** Develop the film in a tank, (in early times the development took place in trays).
- Step 3** Exposure of the photographic paper: the film is placed in the enlarger and the negative is projected of the paper below, (the darkroom is lighted by lamps in read or green-yellow, a light to which the paper is not sensitive).
- Step 4** Development of the exposed paper in trays (typically for black and white, colour is normally developed in drums).

The print is the destination. All four steps will have an effect on its quality. Therefore a wrong exposure of the negative results in a lack of quality in the print. Underexposure makes a print too dark, overexposure too bright. For this, the Zone System works like a mathematical formula and the error can be located easily. The possibility to make a good print out of a bad negative are very limited. The photographers' community offers since the very beginning a lot of recipes: but all of them do not keep what they promise. To make a half way acceptable print out of a bad negative consumes much more time as if you have got a perfect negative. If possible, it is better to make the photo another time and produce a negative of high quality.



The brilliant appearance of a print depends on its range of grey tones. A full scale from deepest black to most brilliant white is needed to give the impression of a brilliant photo together with depth and profoundness. A print with a dull expression lacks of grey tone. Normally deep black is missing scale, mostly due to an underexposed negative. The common recipe tells us to print an underexposed negative on a paper of hard graduation but this causes an unnatural and strange appearance of grey tones.

The human eye can be easily betrayed and assumes deep black or brilliant white where is none. This is due to the surrounding areas. A spot will be accepted as absolute black just as it is surrounded by areas of dark grey. The appearance of such a print is dull but at first glance you cannot understand why. Further investigation will discover: maximum black is missing.

A very simple tool for testing is a paper with pure black and white, only. This test-tool has to be of the paper like the print. How to produce: take a piece of photographic paper, put it under the enlarger with no film inserted. Take a piece of photographic paper, cover the one half with a book. Then expose it for 2-4 minutes and develop it accordingly the recipe of the manufacturer. The developed and dried paper shows the maximum black and maximum white of the paper. Take this test-tool and hold it against the print. If you do not find the corresponding values in the print it is normally rubbish. Reason in most cases: underexposure! (Well in the area of art anything goes but quite often good argumentation is used for covering simply bad results.)

The whole photographic process from film to photographic paper has to be adjusted precisely to produce best results. This is especially necessary in black and white photography. Not really helpful is the common practice of the producers of films, papers and chemistry to define sensitiveness of films without any link to the printing procedure. Therefore black and white films of high sensitiveness of 400 ASA and more should be used with an ASA cut by halves (200 ASA) and will result in better negatives, normally.

Basically the rules are the same with colour films but failure of exposure cannot be seen so drastically in the print, diapositive of film.

The Theory of the Zone System

It is the merit of the late Ansel Adams to develop some 60 years ago a relatively simple system which can be used by simple means of common photographic material. Therefore his Zone System is instructed at universities in the USA up to the very day. In Europe it was never ever accepted, really. Very likely for it appears quite complicated at first glance and seems to be in contrary to the feeling within the area of arts.

Ansel Adams had in mind to develop a system very closely related to the practical aspects, designed to help the photographer in his day to day work. Originally designed to support black and white it can be interpreted to serve colour photography, too. This Zone System inherits the standardisation of the development procedure so that a photographer can hand over his films to a laboratory for development without loss of quality.

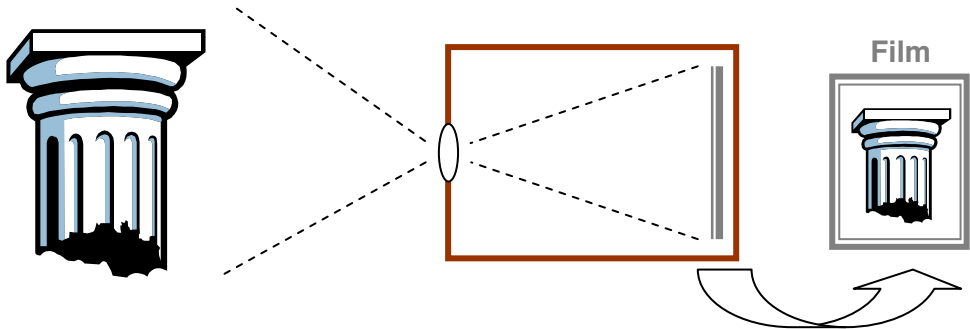
Ansel Adams realised that due of the 4 steps of the process of producing a print (see above) there is a direct relationship between the exposure of a Negative and the grey tones in the print.

The Way of Produce of the Grey Values

The production line from the object to the print. This procedure is described here, the example is a antique pillar, a wonderful object presenting all grey tones with light and shade. The pillar on the one side, the print on the other side, in between the development procedure. This blackbox will be described here.

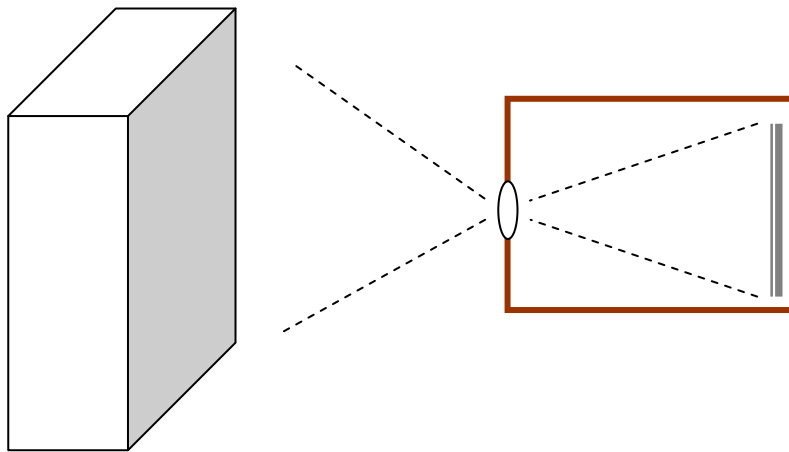


The reflecting light of the object is producing different grey tones in the layer of the film. These grey tones have a close relationship to the object. The object produces an image of the film, after its development the negative appears as a picture of reverse grey tones.



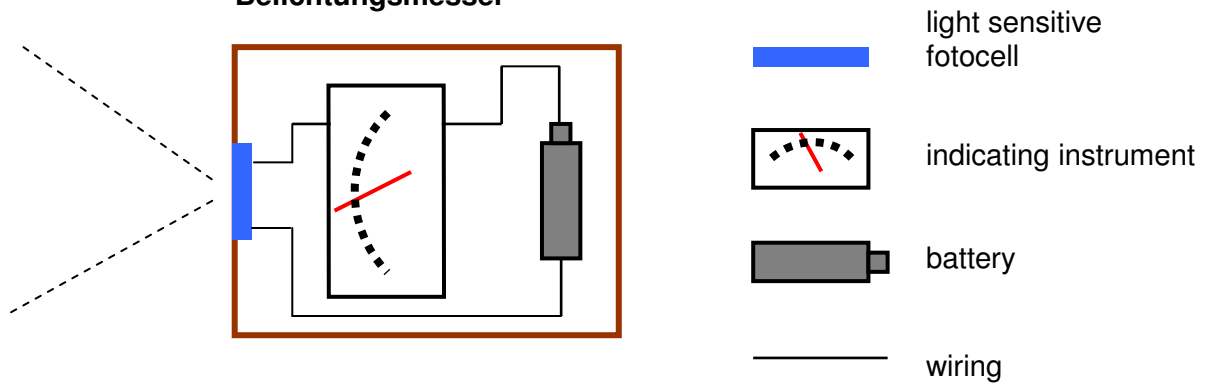
In a diapositiv film the grey tones (and colors) are represented accordingly of the object. This depends of an additional step included which is direct visible in the negativ-positiv process. It is called negative for it creates the grey tones in reverse manner. A bright surface reflecting much light results in a dark part in the negative and a dark part of the object is represented in a transparent area of the negative. This reverse representation of the values is produced by light sensitive argentic salt within the emulsion of the film. Then, the activated argentic salt will be reduchted to pure silver by the developer. Basically a black and white paper is designed likewise. Again it produces reverse grey tones and by this the final result is a print with correct valus. The technique of William H. Fox Talbot is based on this double reverse change of the valus, he only used photographic paper as film. His technique can be used up to the very day with nearly unlimited high quality.

The Function of Light Meter

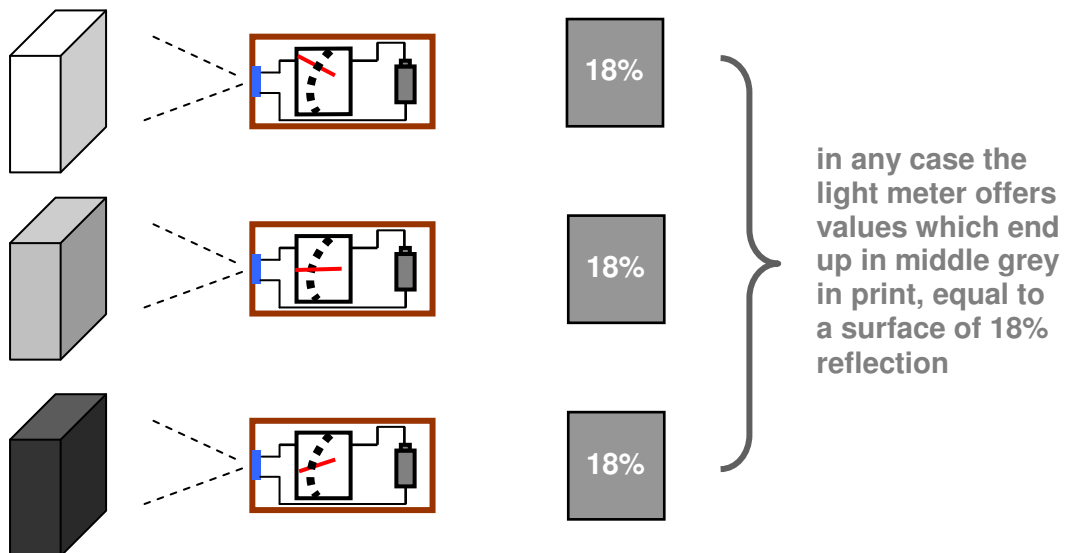


If a photo of a flat object like wall which is reflecting light with an overall equal value is taken the outcome will be a negative with an overall equal but reverse grey tone. If several negatives of differen exposure are taken the density will differ from negative to negative. The common standard f-stops or time-steps offer a doubling of the exposure. If you make a series of negatives for testing the film it is necessary to know with wich exposure value to start. This value will be told by a light meter. All the photographic light meters work in the same manner. No matter the type of a meter – there are special disigns for any purpose – all are working basicly in the same way, if it is a built-in of a camera or a hend held one.

Belichtungsmesser



A light-meter is a light intaking instrument and measures its intensity on a photocell. This is an adjustable electric resistance which alters accordingly to the incoming light and by this creates different tensions in an electric circuit. These values are shown in a standardised scale offering combinations of f-stops and time steps which can be used directly for photographic purpose. The standardisation is designed in a manner that any photo taken by the offered values results in an area of middle grey which reflects 18% of the incoming light. This is the result with any taken object no matter its brightness.



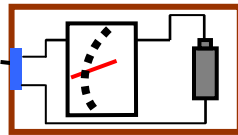
This is in contrary to normal experience. You have taken photos of your family, landscapes and holidays and the results do not look all over grey. These acceptable results are based on the situation or objects. They offer a variety of different grey tone values which all over count up as middle grey. This is what the light-meter sees. But there are also situations which do not sum up as middle grey (18% reflection) and then the values presented by the light-meter are wrong! In these cases the prints will end up in too dark or too bright. Or, if the laboratory tries to save such negatives the prints will have a dull appearance.

Such wrong exposures occur quite often if landscape with a large portion of sky is taken. The sky is much brighter than middle grey and therefore the light-meter offers a short exposure time. It sees a bright landscape and cannot differ between ground and sky. Only if photos are taken northward the exposure is correct for the reason is that northern sky is always of middle grey.



Another very common error occurs with portrait. This is based on European skin. Caucasian skins are 2 to 4 times brighter than middle grey (Africans are in favour). If a light-meter catches a Caucasian face, only, an underexposure is the consequence. Another situation would be if you take a portrait in front of a white wall. If the underexposure exceeds 3 to 4 f-stops and such a negative were lost, there will not be any possibility to save it. The only solution is to correct the values given by the light-meter. The best help is a light meter which takes only the face selectively, then with a Caucasian face you will take 2 or 3 f-stops brighter, i.e. instead f-

stop 22 use 8.

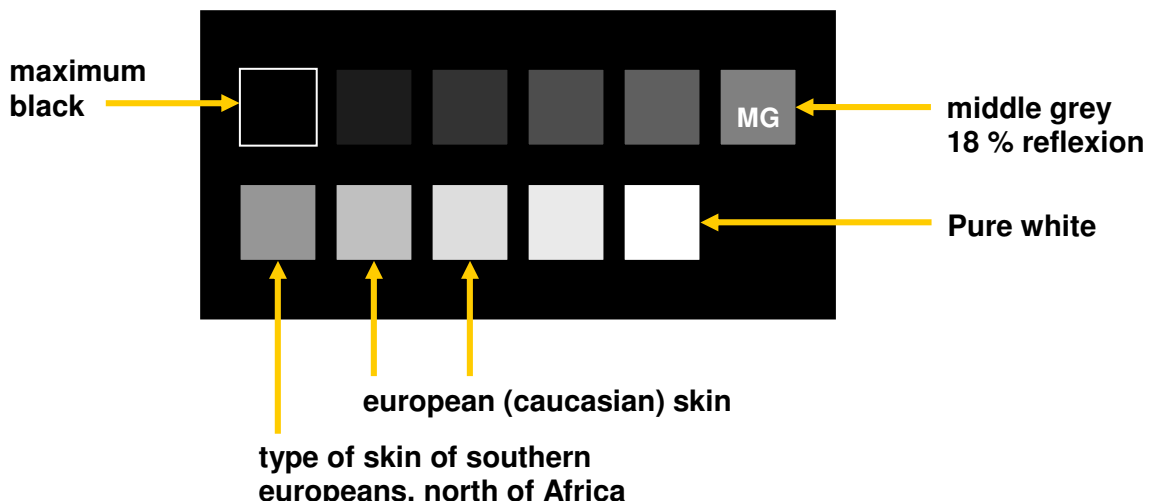


spot light meters work with a limited angle and offer a viewfinder to aim precisely on a certain face or object

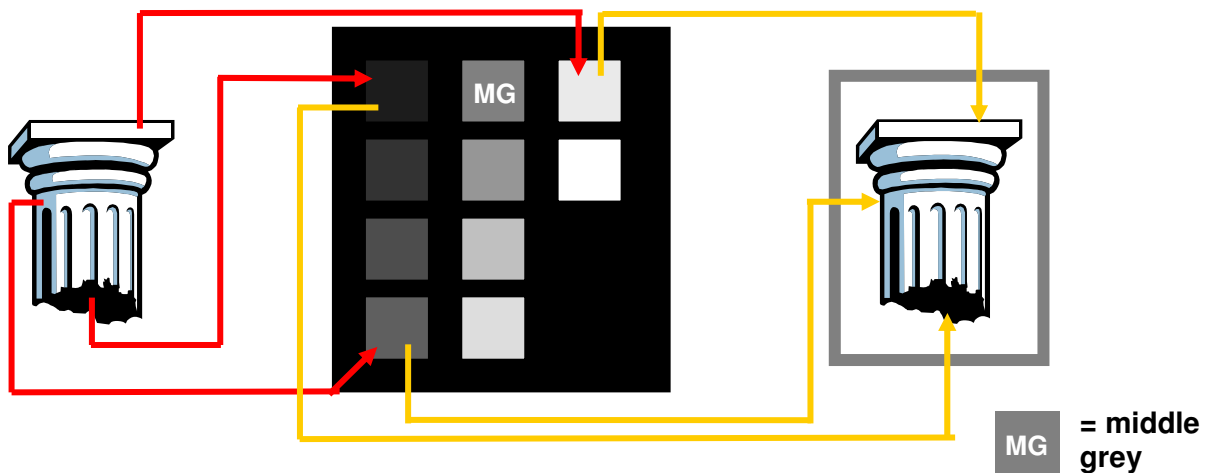
Also difficult objects are buildings made out of bright material, landscapes in wintertime, cost lines with beach etc. In such locations the light-meter will tend to offer values which result in underexposure (with diapositives or film an often welcomed effect). A procedure similar like the one described above will help.

Modern built-in light meters scan the object and a built-in software decides which sectors will be taken in account. This technique is very helpful for snapshots but cannot every situation. Even the most sophisticated light meter stays what it is: a light meter.

To understand the exposure process someone has to understand at first the Print. How to judge it? A nice tool is a grey tone chart. It represents the grey tone steps a film developed in a certain manner will produce in print. The steps show the differences between full f-stops in exposure. Within the Zone System of Ansel Adams a „standard film“ has 11 f-stops from maximum black up to the very bright.

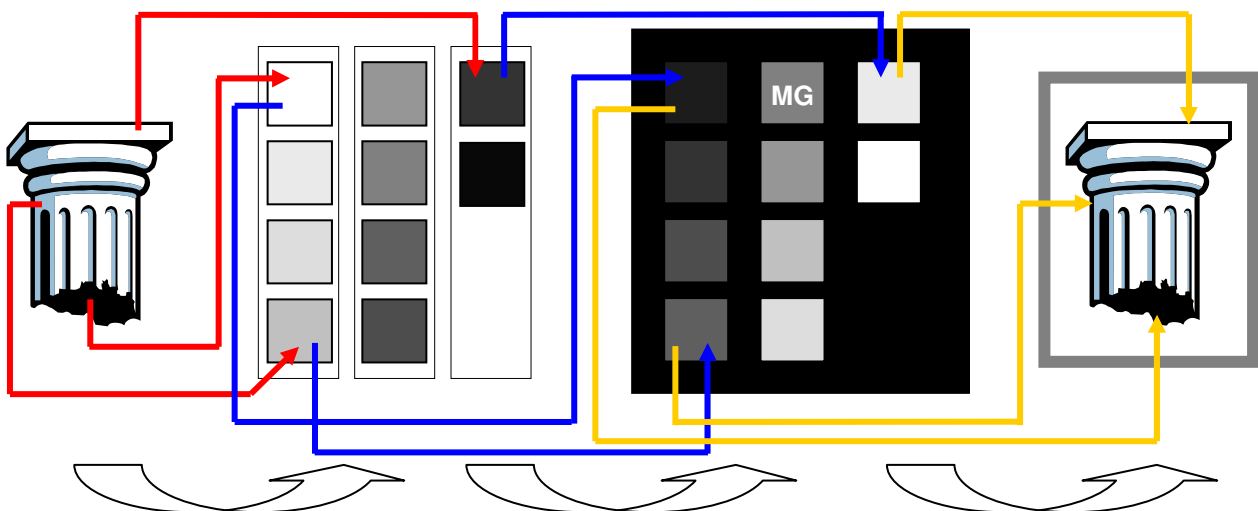


The Relationship between the Light Values of the Object and Values of the Print



A grey tone card is helpful for the exposure of the film. With this tool a calculation of the grey tones in the print is quite easily done. The print will show the grey values as expected.

Here is a small training: hold the grey tone chart at different parts of an object and relate them to the values. Someone will understand easily that the range of grey tones of the object cannot be represented in the print. This limited space is part of the abstraction with which the print differs from reality. Herein lies one of the opportunities of creating art.



In the picture above shows the relationships between the values of the object until they reach the print presented. At the left hand is the object, then there are the negative and the grey card and finally the print follows. The object emitting light and produces different values within the negative. They will create reverse different values in the negative. By this each part of the object is creating a creating but inverse grey value in the print. A dark part of the object will create within the negative an area of low density, a dark area of the print will be the result.

To avoid unforeseeable results film and paper should be adjusted to each other precisely. This will result in prints of foreseeable values and much higher quality.

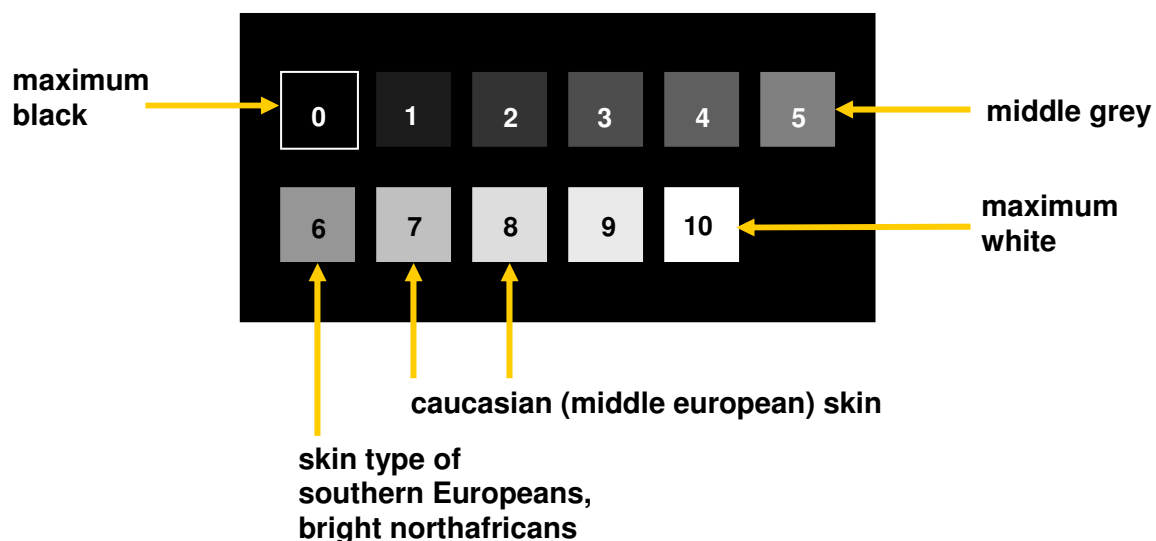
The Ansel Adams Zone System

The central aspect of the Ansel Adams Zone System is the predictability. The basic idea of Ansel Adams is the *Preimagined Concept of Print*. A photographer foresees his print or picture in front of his inner eye, somehow the picture is already finished but now the photographer is searching within the reality a suitable object to make his dream come true. Together with other photographers dedicated to infinitive quality he founded the *Group Focus 64*. His contribution to help photographers to reach highest quality was his invention of the Zone System.

The Zone System tells us the defined procedure, starting with an exposed negative, by which an object of reality is converted into a materialized imagination fixed on a print.

The first step is the precise measuring of the light reflected by the object. A selective working light meter or even a spot meter is very helpful to understand the reflected light of certain parts of the object. The brightness of each part is related directly with a certain grey tone of the correspondent part within the print. But several measurements ensure the best exposure of the negative, the basis of a best print.

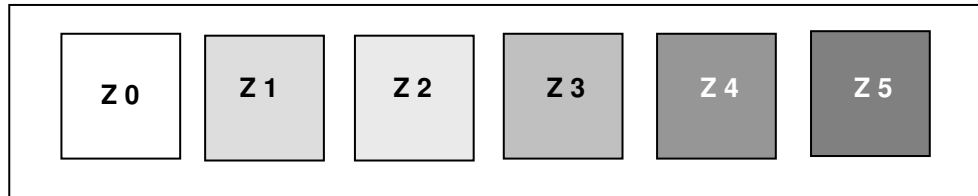
Basically the grey tones of the print should start with a maximum black smoothly changing to be more and more bright until a maximum white is reached. Maximum black or white refer to the qualities of the photographic paper in its extremes. In a more mathematical way like Ansel Adams did I like to name these as *Grey Tones* from 0 to 10. They reflect to so called film of *Standard Contrast*, like it was defined by Ansel Adams. These *Grey Tones* there are *Zones* in the Negative.



The following chapter will deal with the relationship between the *Zones* of a negative and the *Grey Tones* in the print produced by the negative. The procedure which will be presented here is the contact copy.

(Next chapter: *Adjustment Step 5, Exposure of photographic paper and test film*)

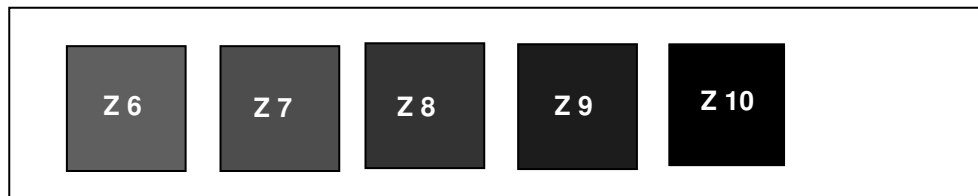
Film - Negative



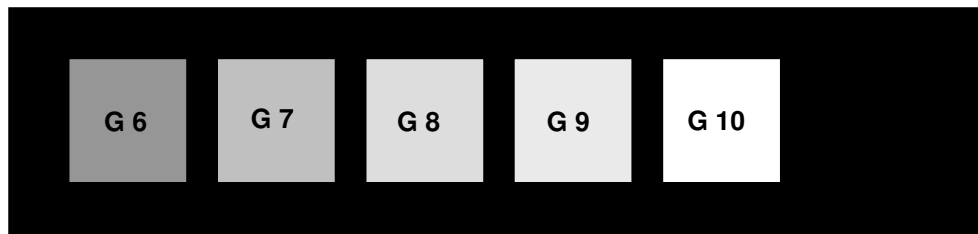
Contact print



Film - Negative



Contact print



This example shows the relationship between the densities, the *Zones* (Z), of the negative and the *Grey Tones* (G) within the print. To receive such a sequence a paper of neutral grey tone (i.e. white) should be exposed in full f-stops (Adjustment Step 3). The developed film will be used to make a contact print and you receive your personal grey tone card. This is linked to the film, its development, and the used photographic paper and its development procedure.

This example here reflects a film of so called normal contrast. Nearly any film can be developed to this contrast or graduation. If a film is developed longer then it might produce *Grey Tone* 10 with *Zone* 9, such a film is suitable at low contrast illumination. Except with extreme development formula the relationship between Z0 to Z5 and G0 to G5 will be constant. Only *Zones higher than 5* differ in *Grey Values*.

Contrast	Range of exposure	Usage
N+1	11 f-stops	very contrasty objects like winter landscape, beach, opposite and direct opposite light
N	10 f-stops	normal day in summertime, southern Europe, tropical regions
N-1	9 f-stops	cloudy sky

The Relationship between the *Zones* of a film and the Correspondent *Grey Tones* of a Print

Like already mentioned A. Adams names the densities of a negative and the grey tones of a print likewise as *Zones*. The exposure steps always follow full f-stops, i.e. the film receives at *Zone 1* double as much light at *Zone 0*, and *Zone 2* double as much as *Zone 1* and so on. This goes parallel with the *Grey Tones* of the print, only with films of normal contrast.

The following table shows the exposure factors in relationship with the *Zones* and *Grey Tones*.

Exposure factor	Zones of the Film	produced Grey Tones		
		N+1 Film	N Film	N-1 Film
1	0	0	0	0
2	1	1	1	1
4	2	2	2	2
8	3	3	3	3
16	4	4	4	4
32	5	5	5	5
64	6	5,5	6	6,5
128	7	6,5	7	7,5
256	8	7,5	8	9
512	9	8	9	10
1024	10	9	10	
2048	11	10		

The Grey Tones above Grey Tone 5 for N+1 and N-1 films are estimations and may differ accordingly to the used combination of film and development.

How to define the contrast and speed of the film:

Define the speed of a film use: *Grey Tone 1*

Define the contrast of a film use: *Grey Tone 10*

Notice: The used naming of the film contrast is linked to the number of *Zones* (f-stops) of the film necessary to produce the full *Grey Tone* scale beginning with maximum black and ending with maximum white. A N-film needs 11, a N-1 10 Zones etc. (N = 11). This refers to a mathematical approach.

In contrary A. Adams had in mind a forced development in a way of a prolonged development time and therefore a film of only 10 Zones instead 11 of a normal contrast film for him is a N+1 film (in contrary to my definition: + and – are exchanged).

The Definition of Zones and Grey Tones accordingly of Ansel Adams

Here are the definition of the Zones like A. Adams had published them 1948. Within his defining scale the densities of a film and the grey tones of the print are named *Zones* likewise.

In the following the citings which refere to the negative are represented cursive.

Low Values

Zone 0.

Complete lack of density in the negative image, other than filmbase density plus fog. Total black in print.

Zone I.

Effektive threshold. First step above complete black in print. Slight tonality, but no texture.

Zone II.

First suggestion of texture. Deep tonalities, representing the darkest part of the image in which some detail is required.

Zone III.

Average dark materials. Low valuse showing adequate texture.

Middle Values

Zone IV.

Average dark foliage. Dark stone. Landscape shadow. Recommended shadow value for portraits in sunlight.

Zone V.

Clear north sky (panchromatic rendering). Dark skin. Gray stone. Average weathered wood. Middle gray (18% reflectance).

Zone VI.

Average Caucasian skin value in sunlight or artificial light, and in diffuse skylight or very soft light. Light stone. Clear north sky (orthochromatic rendering). Shadows on snow in sunlit snowscapes.

High Values

Zone VII.

Very light skin. Light-gray objects, Average snow with acute side lighting.

Zone VIII.

Whites with textures and delicate values (not blank whites). Snow in full shade. Highlights on Caucasian skin.

Zone IX.

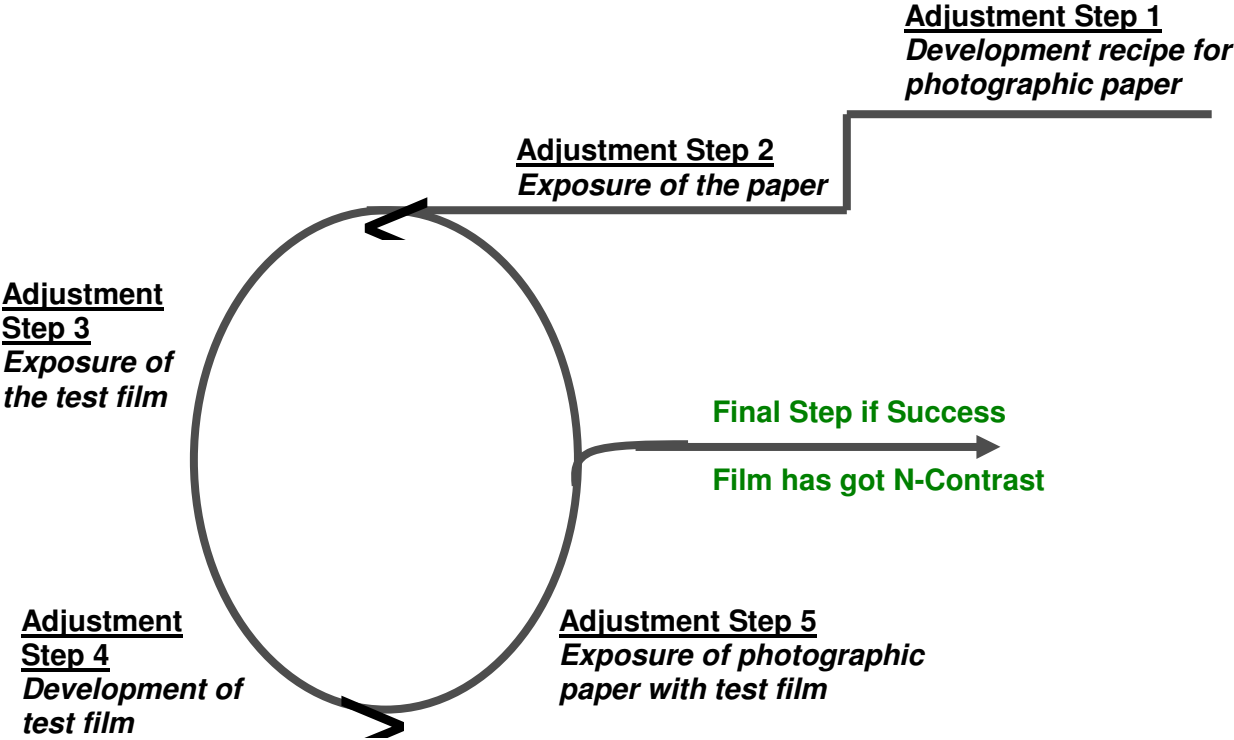
Glaring white surfaces. Snow without texture.

(The only subjects higher than Zone IX would be light sources, either actual or reflected; but they would obviously be rendered in the print as maximum white values of the paper surface.)

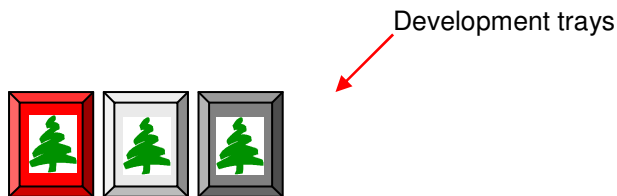
[Ansel Adams, *The Negative*, Hasting-on-Hudson, New York, Morgan and Morgan, Inc., 1948, p. 19.]

The Link between Film and Photographic Paper

The *Zone System* works with standardized processing to define the quality of the print right from the beginning. The darkroom processing steps 1 and 2 are fixed. If the print does not have the desired quality steps 3 and 4 will be adjusted. The kernel of the Zone System is the precise definition of the linkage between the steps. To define this chain the Zone System starts from the rear, for the print is decisive. Not the film, its only a tool producing the Grey Tones of the print. The fixed and defined chain from the exposure of the film down to the ready print enables to identify mistakes precisely.

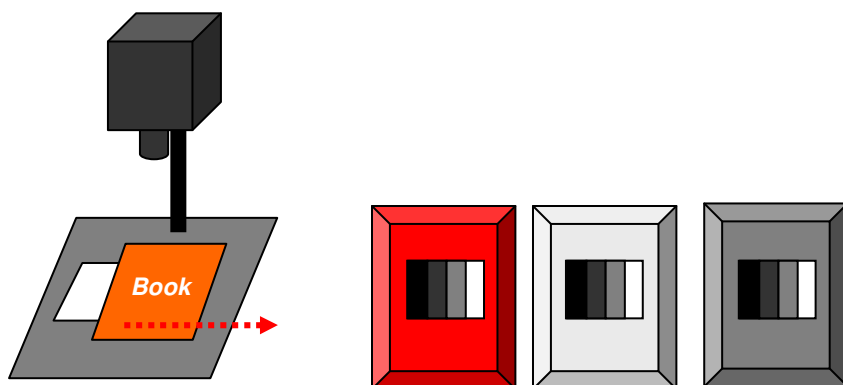


Steps 3 to 5 should be repeated if the film does not show the desired contrast or speed.



Adjustment Step 1, Development recipe, photographic paper

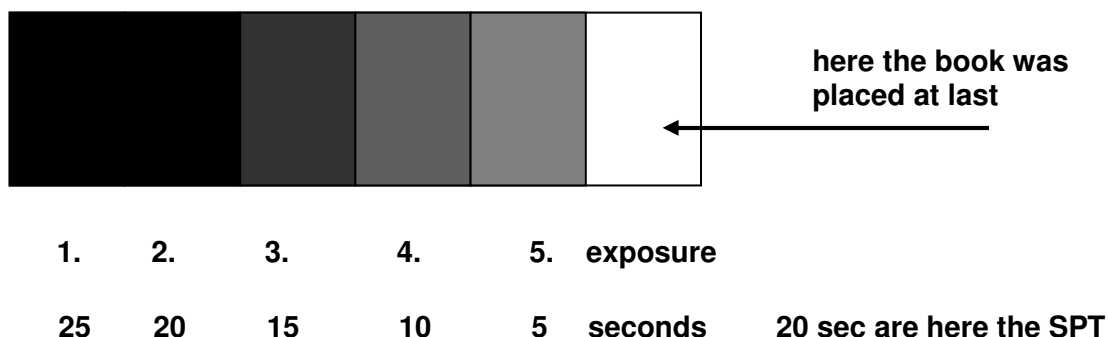
The first step defines the used photographic paper and its development. In the *Zone System* a paper of graduation 2 is the normal graduation. Developer and developing time will be defined in this step, too. Normally PE-paper (plastic base) is developed by 2 minutes and a standard developer to produce normal contrast is used. Baryt-Paper needs 3 minutes. The suggestions of the manufacturer should be followed.



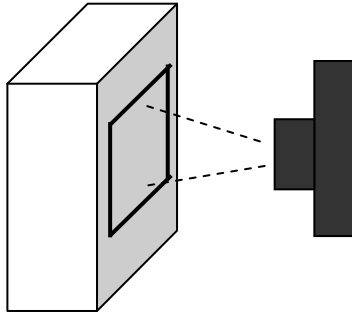
Adjustment Step 2, Exposure of the Photographic Paper

The paper should be exposed in a manner that the intensity of exposition (the distance of the enlarger head from the ground plate and a certain focus, i.e. 8) should be fixed. Then the shortest exposure time which produces maximum black within the developed paper is called the SPT, the standard printing time.

Practically a sheet of photographic paper will be put under the enlarger, mostly covered by a book. Then it will be exposed i.e. with 5 seconds. Then pull back the book by a little and add another 5 seconds. This procedure should be repeated 4 to 5 times. The cumulated exposures result in different grey tones. One of them should be maximum black, if not the procedure should be altered.



The SPT refers to a certain amount of light the, SPAL, the Standard Printing Amount of Light. This amount of light can be fixed by a light meter. With the help of a light meter someone is not dependent on a certain distance of the enlarger head to the ground palate and the focus.



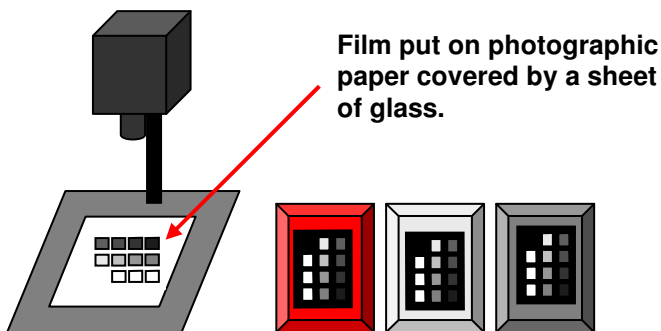
Adjustment Step 3, Exposure of the test film

A paper of neutral grey (white or light grey) is fixed on a wall. The light meter should catch only the reflected light of the paper. The light has to be equal to the normal photographic light, not in the very morning or evening (5500 degree Kelvin). The numbers the light meter is offering is the basis for the exposure of the film. A sequence of negatives should be exposed starting with 5 exposure values (EV) or f-stops below the values of the light meter. The sequence goes on until at least 5 EV above the numbers offered. One of the negatives will be exposed by the values offered directly by the light meter. This negative will by definition of the basic function of a light meter produce an area of middle grey in the print (18% reflection).



Adjustment Step 4, Developing the test film

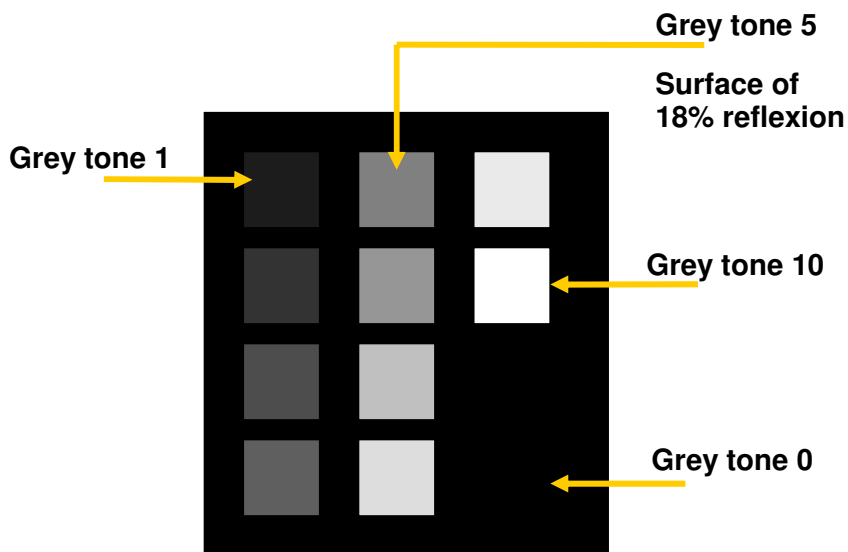
The development procedure should follow at first the advice of the manufacturer of the film.



Adjustment Step 5, Exposure of photographic paper and test film

The Exposure of the paper will be in accordance of adjustment step 2 with SPT or SPAL-technique. Normally an enlargement of the SPT by 30-50% will be necessary due to the basic density of the film. (If a darkroom light meter is not available adjustment step 2 together with a blank part of a film covering the photographic paper should be repeated to adjust the SPT to the film.)

The contact print shows a sequence of areas of different grey tones values from black to white. If at each side of the area of middle grey (18% reflection) are 5 areas which reach in total from maximum black to max. white then Ansel Adams would call such a film as a film of normal contrast.



This picture shows such a contact print. The negative exposed with *Zone 1* (- 5 f-stops of light meter value) should be represented by a very deep grey close to black (*Grey Tone 1*). If it is total black (*Grey Tone 0*), the speed of the film was supposedly taken too high.

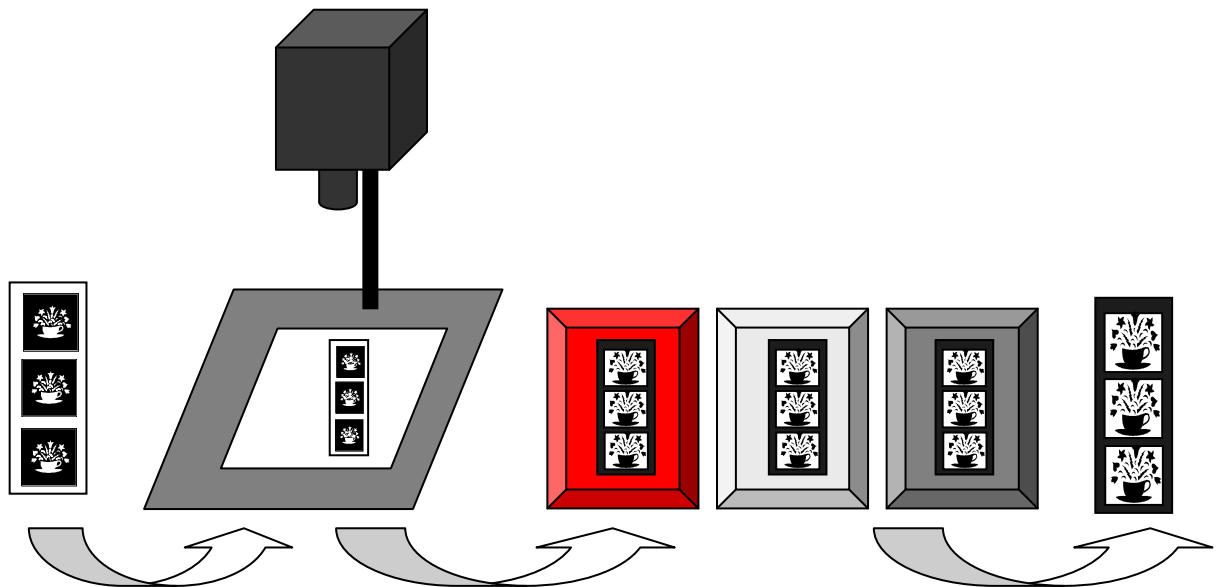
If the negative exposed with *Zone 9* (+ 4 above light meter value) is represented in the print with maximum white (*Grey Tone 10*), the film is developed too long.

At the beginning a film of normal contrast should be the aim. If the results differ from that adjustment steps 3 to 5 should be repeated.

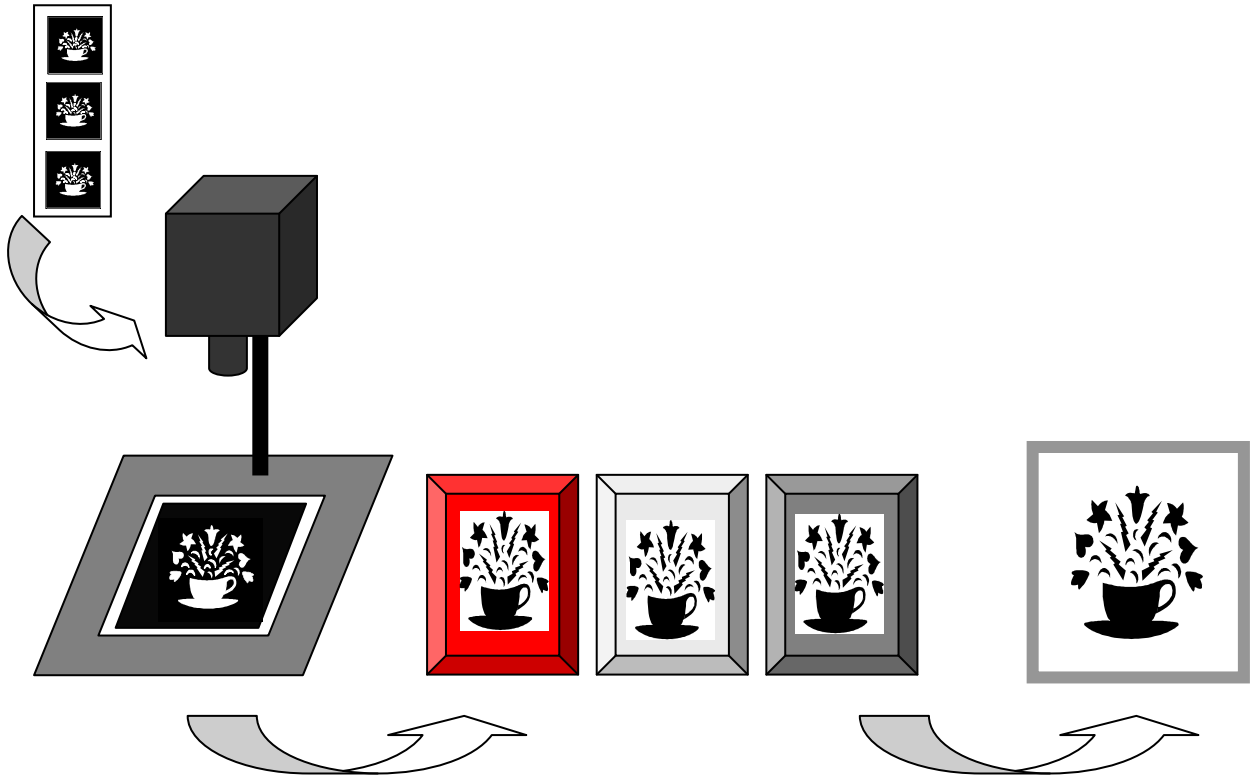
The repeating of the adjustment steps are characteristic in a repeating of the adjustment steps 3 to 5. If changes are taken within the chain of processing only one step at a time will be altered to keep control of the whole process. It is like a mathematical formula. Solving a problem with only one variable is quite easy, with more variables is much more difficult.

Contact Print, the first Step to Print

The first step to the print starts with the contact print. This should be done with SPT (SPAL). Such a contact print offers the photographer exact information about the quality of the print. A print appearing too dark is not worth while printing, it is rubbish. Only a negative producing a contact print close to perfection is good enough for making a fine print.



At the left side there is the film strip which is to be put onto a sheet of photographic paper. Then expose it with SPT/SPAL. Then the development of the paper passing the development trays containing developer, stop bath, and hypo has to be done. It ends up with a contact print which will be in a dried condition a vital tool for dark room work.



The first copy should be nothing else but an enlarged contact print. The exposure should be done with SPT/SPAL.

This so to say to produce an enlarged contact print offers the real quality of the negative without compromise. This first result may not always please but that does not count. This print enables the photographer to take the next steps or to stop further treatment. It is better to repeat the making of the photo – if it is possible – instead spoiling time on a bad negative.

The destination is to create a perfect print !

Is this enormous technical effort really necessary ?

Does it not make someone curious ?

Exactly this is it what it does. Very easily useful technique can convert into a prison, limiting the sensitiveness. But the photographer is depending on craftsmanship otherwise the outcome will be unpredictable and the technical quality might be that low that his imagination could not come true. Craftsmanship is a normal quality in art but a photographer is more linked to technique than others, i.e. a painter. The advanced equipment a photographer offered today might tell him craftsmanship is not necessary any longer.

Nevertheless, I would like you to understand that automatic exposure is not in any case the best choice. To remind you that here is an example: if you take a portrait photo and follow the results of the light meter will lead to a underexposed negative (if the person is not African). You have to adjust the values of the light meter by 1 to 2 f-stops more to cope with the bright skin. This is the only way to get a correctly exposed print.

A photographer must stand on two pillars, his sensitiveness for art and his technical craftsmanship. These both sides never ever really fit, there will stay a gap to bridge.

There is a feeling, a picture in front of the inner eye, a sudden feeling. To press the shutter button instantly will be the solution only if the scenery will change the next moment. Technical problems will occur frequently. But by taking time and judging the situation, taking the measurements of the light meter in account, making decisions of the necessary contrast of the film – all this might endanger the sensible feeling of the photographer. Likely this conflict may tare him into halves – only very few are able to unite these parts of completely different characters harmonically.



There was one who was able to do so, to unite. This one was the late Ansel Adams. He developed the Zone System, the training lessons for generations of learners. Adams' most famous print is „Moonrise over Hernandez“. He judged his negative by himself as of bad technical quality. And a close look at the print discovers the reason for this judgement. He used the most sophisticated techniques to hide the errors. So his most beautiful print tells lies about his legacy (In fact he needed some 700 negatives to produce one perfect print). All brilliant techniques do not

help a lot if you face the perfect scenery and have not enough time left to work out suitable adjustment. Now best craftsmanship in the darkroom is asked for. But nevertheless in any case a perfect negative will provide best help to create a beautiful print.