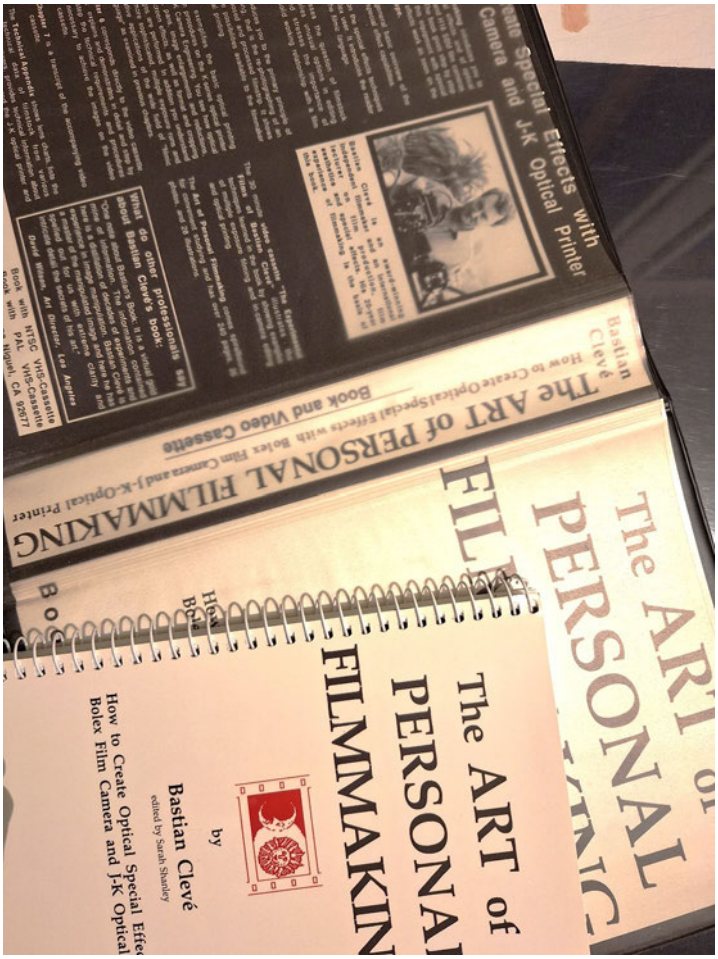
THE ART OF PERSONAL FILMMAKING – bootleg version



Feb 2025

Hier handelt es sich in Teilen um eine Scan-Version meines englisch-sprachigen Buches, das 1989 in Los Angeles im Privatdruck und als Privatherausgeber (zusammen mit Achim Strupat) erschienen war.

Das Buch (zusammen mit der VHS-Videocassette) hat in geringer regulärer Auflage und in Raubdrucken seinen Weg in die Szene des „experimentellen Films“ gefunden – dies zumeist in Film Departments von Colleges oder Universitäten. Oft genug habe ich durch persönliche Schreiben oder Anfragen davon erfahren.

Buch und Video-Cassette waren die Grundlage für eine dokumentarischen Produktion der FWU („Film in Wissenschaft und Unterricht GmbH“) in München, die meine künstlerische Filmarbeit zum Inhalt und in deutschen Landesbildstellen ihren Absatz gefunden hatte.

Heutzutage lassen sich die im Text erwähnten Filme zumindest in Teilen in Streaming-Services oder auch im Rahmen meiner Webseite www.bastiancleve.com finden und betrachten.

Das Buch ist eine grundlegende Auseinandersetzung mit dem Handwerk des künstlerischen Filmemachens mit der 16mm Bolex-Kamera und dem JK-Optical Printer. Also mit der Zeit des analogen Filmemachens vor der Zeit von Computer-Bilderzeugung.

Wie ich höre und lese, erfährt diese handwerkliche Methode des Filme-machens eine Wiedergeburt und ein erhöhtes Interesse bei jungen Filme-machern – in diesem Sinne hoffe ich, dass die hier geschilderten Erfahrungen selbst zu neuer und erweiterter Kreativität und Freude am Prozess führen….so wie ich selbst es erfahren durfte

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Clevé, Bastian
The Art of Personal Filmmaking

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To order additional copies of this book and the accompanying video cassette use the order form at the end of the book or contact:

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Bastian Clevé is available for seminars, workshops and lectures. His films are available for rent or purchase. For more information and inquiries please contact:

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ToC

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Foreword and Introduction

Forewords by Art Director David Wilson, Professor of Film Russ Johnson, and an Introduction by the author.

Foreword I

When all is said and done there are basically two kinds of motion picture shots:

- Shots which present the viewer with the events that took place in front of the camera during the time in which the camera was running
- Shots which present the viewer with images or events which have never existed or occurred in the material world

The second form of filmmaking is the subject of this text.

For many filmmakers, once the shot is set up, photographed, processed and the daily rolls are viewed their job, except for a few little editorial niceties, is almost finished. For Bastian Clevé, these daily rolls are just the very beginning of a long, sometimes arduous and sometimes exhilerating process of image manipulation.

Bastian Clevé has called this book **The Art of Personal Filmmaking** and a viewing of the accompanying video cassette of Bastian's work will attest to the potential and power of image manipulation when applied to filmmaking as a fine art. However, I believe that this book will discover a far broader audience, extending

Introduction

It is only through the intimate knowledge of all the details of filmmaking, that is the knowledge of the motion picture camera, the editing process, the workings of a film lab and all other related technological aspects of the creation of film, that a filmmaker or artist is truly capable of finding, distilling and expressing his own personal vision and view.

This book has been written because I don't know of anything more rewarding and satisfying than to see one's personal creations come to life and eventually appear on the screen.

Film can be a very magical and mysterious experience, because we are watching images and things on the screen which are not really there. And, we are endlessly fascinated by the realities film can create. Filmic realities, that is. It must be understood that film is a medium, that it has its own language - a fact which is not be disputed in the media of music, poetry, and painting. However, because film is so perfectly capable of mirroring a true-to-life image, we are seduced into perceiving and accepting it as the reality which it portrays so well. But, as in any other art form, it is only a transformation of reality; there is always the filmmaker and the available technology which determine what and how things will appear on the screen.

So, unless the filmmaker is fully aware of the technological processes which "filter" the reality into "filmic reality," he will limit himself accordingly in his "language" of expression.

This book approaches the medium in as broad-minded and farfetched a manner as practically possible. Very soon, we will leave the filmic realities of everyday television and motion pictures, because these belong to a limited form of filmic expression which, when compared to the "eloquence of Personal Filmmaking," resemble more the "babbling of a film-infant."

Filmmaking is always very hard work, intellectually and in terms of craftsmanship. Nothing comes easily or is produced overnight; however, the rewards and pleasures are so stimulating , so exhilerating and so joyful that all of the moments of pain and doubt and desperation are quickly forgotten once the lights are turned off and the projector is turned on...

Bastian Clevé, Los Angeles, March 1989

Interview

I

Excerpts from an Interview

Interview of Bastian Clevé by Russ Johnson in April 1985. Edited for publication March 1989.

RJ: I am interested in what your background is and what led you to become a filmmaker. In particular, what led you to make, for lack of a better word, "experimental" films rather than narrative films or documentaries?

BC: I went to the School of Fine Arts in Hamburg for five years and for one year to the San Francisco Art Institute. I have always wanted to make films which were different. I was bored most of the time in a movie house by the visuals and the narrative. I thought, "This is just not all there is to film." There were images I wanted to have; and I needed some equipment to do that. So, I got the Bolex because the Bolex offers the most technical choices you can have with a camera. I had images in my mind which I could create with a Bolex. I wanted to make films the way I wanted to see films. I was basically unsatisfied with what I had seen. I wanted it to be much more strange and fantastic.

RJ: Did you see any experimental films?

BC: Hardly anything. In those years, during the late Sixties, early Seventies, they started the Hamburg Film Festival; and there was some New American cinema. In Germany, you read more about experimental films than you actually saw. I did see a few in San Francisco. That's where I saw most of the work. Also, Russian filmmakers like Sergei Eisenstein, then Stan Brakhage and Maya Deren

and other classics of the New American Cinema - I have seen them. What really impressed me was that they were so unrestricted. Coming from a European background, I feel more at home in the tradition of Bach, where you construct something, or in the work of Mozart, a lot of fantasy, but also with a very strict structure to it. What I found in American filmmaking is that you are completely free and everything is available. It almost feels like too much freedom. That was the main impression I got with American filmmaking which was appealing. That liberated my kind of filmmaking. The films I did before the San Francisco Art Institute and those after are quite different. I didn't use a tripod after that... For example, in Germany, I used a tripod. I had been shooting inside rooms looking outside. In the United States, I never shot inside a room. So there's really quite a difference there. I think you can trace the history of the psychological development of a filmmaker by looking at his films. The film is a mirror of the psyche, of the mind, definitely. I can see that with a lot of filmmakers and a lot of films.

RJ: So, you're saying that film techniques reflect the filmmaker's psychology.

BC: Absolutely. The pacing, the editing, just what you show and how you show it. Those things are inseparable. Like the way a writer constructs his sentences, whether it's a simple sentence or a complicated sentence. It's the same with filmmaking. I especially watch films for that reason. I want to figure out who is the person behind the camera. These are the only clues I really have: not just what he shows, but how he shows it. In that sense, in Germany, we were shooting inside rooms, looking through windows to the outside, while in the United States we would have left those rooms and gone outside. We would have taken the camera into crowds. In that sense, very simplistically, it was a liberation in filmmaking to me. It goes much further than just this example.

RJ: How do you approach filmmaking? Do you come to a particular project with a preconceived idea? Do you start with some footage that you already have and then the film starts to build itself?

BC: Both ways. With some short films, I just have a development, a visual development in mind. One image, or just an idea. Then, I start working from there. Most of the time, I script the film in detail, or at least on a technical level as to how to go about getting these images. The other way is when I shoot while travelling, which I enjoy a lot. You start noticing images and collect them, having in the back of your mind, of course, the way you want to transform them. In my case, I have been using the optical printer a lot. I know that I am going to use it to a large degree and that influences the way I am going to shoot

from the beginning. Then I go out and look for images - like the feature length film, *San Francisco Zephyr* which I did in 1977 during a three month trip across the United States, or *Holi* which I did in 1981 during a three month trip through India. I went places I'd never been before and tried to explore them for myself through the camera. The film builds in that time. Of course, you get certain footage and then you get certain ideas. "What footage would go along with that to make up a narration?" So, the film grows in the three month process into a narrative film. You are very much involved for three months, day and night, shooting that film. It just builds and builds and builds. I think this is a very challenging way to work, because you are building, collecting material and then, in your mind, it starts to grow. The film comes together in your mind. And, after that, you go for shots that you need to complete that "screenplay" which you have after maybe ten weeks. It's most interesting that you may find something in the tenth week which makes sense with things you have shot in the second week. It's very exciting to do that.

RJ: Your films seem to me to be very dense in terms of how many images you put in them.

BC: Even so, they move very slowly. But, somehow, they look very rich because of all of the superimpositions, the slowing down, all the fade-ins and fade-outs. You should see any film more than once. For those people who work months and months on a film, there is a reason for everything they do. You may just not get that the first time you see it. On the first viewing, I often find a film unsatisfying. And, then, it gets satisfying once I know what structure I can anticipate.

RJ: When I see your films, I get the sense that you do take a sensual pleasure in the way the images are structured and in the way you put them together, almost in the way a sculptor or painter would with their particular material. You mentioned "weaving" in connection with *San Francisco Zephyr*...

BC: This whole film is 81 minutes long; and it has 80,000 fade-ins/fade-outs in this time. And, I would say, at least 60% or 70% of them you can't consciously see. According to the length of the technique: the dissolve, the fade-in, the fade-out, it's more or less invisible how I lay single images on top of each other. And, the idea of weaving goes back to the idea of music. I create layers of images in different thicknesses. You can definitely see it, and you can almost taste it. That is a very pleasurable experience for me; it is the way I want to see movies. If you are bored with what you see, whether it is Niagara Falls or a rodeo, you are able to just watch the fade-ins, fade-outs, or how things are structured. So, you look at the surface of the film; and, it's still a pleasure to see it. It's still an experience you can

enjoy, because it is consciously composed. All the blocks of weaving and structures relate to each other on a mathematical or on a musical level. So, you can follow that and derive a certain pleasure from it.

RJ: So, it is literally like you are weaving in a texture of images?

BC: Yes. That is why I enjoy the optical printer so much, because it gives you control over each single frame. And that is something you just cannot do in the camera to such an extent and still maintain real, live character and time. That is why, very early on, I built myself an optical printer.

RJ: You were talking about taking pleasure in doing some kind of effect, a fade or a dissolve or something like that, which wouldn't be seen by the audience. But, watching your films, it seems that many of your movies are about filmmaking and the process of intermittent movement and the way motion pictures work. And, you seem to foreground that so that the audience will see that.

BC: I want to make a film which is only possible with film, definitely. I am not interested in shooting some footage that would be possible as theater or any other art form. The art of filmmaking isn't something which basically happens on a stage. I have no reason to do that, limited filmmaking at 24 frames per second, sync-sound. So this idea, that it is only possible with film, is all important. It's not really that I point a finger to the viewer, "Now this is how it works." That is really not my concern. I see myself as a craftsman who wants to master his craft in such a way that it is purely filmic, maybe so good that fellow craftsmen don't know how it's done. If you want to, you can learn a lot about filmmaking from these films. You don't have to, but you can.

RJ: Let's follow this up a bit. What are the subjects of your films?

BC: I think it's exploration in the widest sense, exploration of the act of experiencing movies as well as exploration of what is out there in the real world. I am in a constant, utter amazement at what I see in the world, at what people do, the way they do it, how the world looks...and how movies can expand on this, interpret it, enrich it, become a world of their own...a reality existing on the screen, and perhaps in the viewer's mind.

Chapter One

1

The Camera

This chapter describes the Bolex' special effect capabilities without consideration of the increased creative possibilities available to the filmmaker with its use in optical printing - a subject to be discussed in a later chapter.

The Bolex camera is a unique and highly appealing tool for the personal filmmaker; and I do not know of any other camera which provides the film artist with such a wide array of options, features and possibilities. The two camera models most widely used by the personal filmmaker are the Bolex H16 RX-5 and H16 SBM cameras. Generally, they are used in non-sound or non-sync-sound shoots. Older, non-reflex Bolex cameras can be found in used camera shops; but, because they are somewhat cumbersome both in field work and especially in the realm of optical printing, I do not include a discussion of the non-reflex variety within this text. However, the basic operating procedures outlined, with regard to the H16 RX-5 and H16 SBM, are exactly the same and are therefore relevant for non-reflex owners.

The H16 RX-5 and H16 SBM only differ significantly in terms of their lens mounting systems. While a lens turret for three "C" mount lenses is part of the the H16 RX-5 model, a bayonet lens mount is characteristic of the H16 SBM. By use of a "C" mount bayonet mount adapter, the SBM can utilize all lenses ordinarily used on the RX-5 model. However, lenses used specifically on the SBM's mounting system cannot be used on the RX-5. (See illustration 1.1 and 1.2)

These models are optionally equipped to install a 400 foot film magazine. See illustration 1.3. Both in personal filmmaking and optical

H16 RX-5

Mechanical system

Powerful spring motor with high precision governor (drives 5 m of film with a single winding). • The camera can be fitted with an auxiliary electric motor. • Shutter with variable opening angle (with the camera stopped as well as while filming); maximum opening 135°; shutter closes when camera stops.

Operation: normal forward motion, continuous and single-frame filming, full rewinding with hand crank. • Automatic threading; spool ejector; loop former.

Filming speeds 12, 16, 18, 24, 32, 48 and 64 f.p.s. + single frame.

Optical system

Reflex viewfinder with light captured through exceptionally sturdy, swivelling, misadjustment proof prism, mounted in front of the shutter. • No flicker; picture always visible. • Fine ground glass on prism itself. • Magnification 13 x. • Adjustable eyepiece: ± 5 diopters. Rubber eyecup, directional and can be folded over. • Viewfinder light trap. • Field of view corresponding to standard 16 mm projection field. • TV frame: 8.40 × 6.30 mm; R = 1.7 mm.

Lens turret for three "C" mount lenses. • Thread diameter: 1" (25.4 mm). • Focal flange distance: 17.52 mm. • Built-in filter slot for gelatine filters.

Light meter

The H16 RX-5 camera can be equipped with the Vario-Switar 100 PTL lens with built-in light meter, which automatically sets the diaphragm during filming.

Synchronous sound recording

Camera equipped with ESM auxiliary motor: possibility of synchronization by crystal control or sync pulse equipment with automatic clapper, at 24 or 25 f.p.s.

General

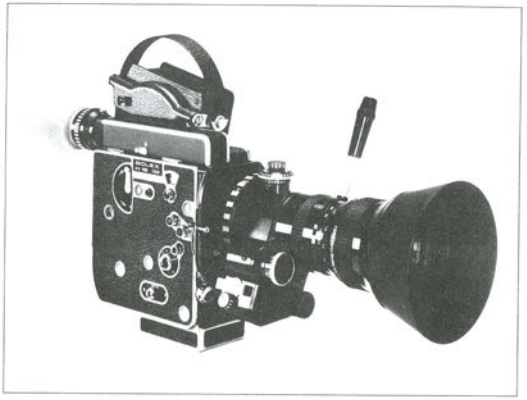
Capacity: all single or double perforated 16 mm films on 100 ft spools; possibility of fitting 400 ft magazine. • Frame counter. • Counter in feet or in metres. • Front release for normal operation; side release for normal, continuous and single-frame operation (can be operated by cable).

H16 RX-5 camera	Codes:
• with TV frame	210.020 REXKI
• with TV frame and RX-Fader	210.021 FAXKI

Illustration 1.1: The Bolex H16 RX-5

printing, usage of a 400 foot load is rarely required, unless the printer is used for extensive 1:1 step printing with originals exceeding 100 feet. Otherwise, the regular 100 foot camera film spools are sufficient for the filmmaker's needs. Both camera models can operate without an electric or battery driven motor, run by a spring motor with a high precision governor driving five meters or fifteen feet of film. This translates to approximately 24 seconds of shooting with 24 f.p.s., or 12 seconds of shooting with 48 f.p.s., or 48 seconds of shooting with 12 f.p.s. The flexibility and freedom offered by these cameras which operate independently from an electric power source are balanced by the primary

H16 SBM



Mechanical system

Powerful spring motor with high precision governor (drives 5 m of film with a single windig). • The camera can be fitted with an auxiliary electric motor. • Shutter with variable opening angle (with the camera stopped as well as while filming); maximum opening 135°; shutter closes when camera stops.

Operation: normal forward motion, continuous and single-frame filming, full rewinding with hand crank. • Automatic threading; spool ejector; loop former.

Filming speeds 12, 16, 18, 24, 32, 48 and 64 f.p.s. + single frame.

Optical system

Reflex viewfinder with light captured through exceptionally sturdy, swivelling, misadjustment proof prism, mounted in front of the shutter. • No flicker; picture always visible. • Fine ground glass on prism itself. • Magnification 13 x. • Adjustable eyepiece: ± 5 diopters. • Rubber eyecup, directional and can be folded over. • Viewfinder light trap. • Field of view corresponding to standard 16 mm projection field. • TV frame: 8.40 × 6.30 mm; R = 1.7 mm.

Very sturdy *bayonet lens mount.* • Bearing on three small tongues; centering diameter: 60 mm. • Easily adapted for most "C" mount lenses. • Focal flange distance: 23.22 mm (17.52 mm with adapter for "C" mount. • Built-in, retractable, filter slot for gelatine filters.

Light meter

The H16 SBM camera can be equipped with the Vario-Switar 100 PTL lens with built-in light meter, which automatically sets the diaphragm during filming.

Synchronous sound recording

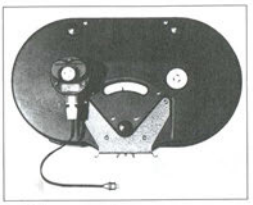
Camera equipped with ESM auxiliary electric motor: possibility of synchronisation by crystal control or sync pulse equipment with automatic clapper, at 24 or 25 f.p.s.

General

Capacity: all single or double perforated 16 mm films on 100 ft spools; possibility of fitting 400 ft magazine. • Frame counter. • Counter in feet or in metres. • Front release for normal operation; side release for normal, continuous and single-frame operation (can be operated by cable).

H16 SBM camera with RX-Fader	Codes: 210.030 BACIN 210.031 BACOR

Illustration 1.2: The Bolex H16 SBM



400 ft magazine

(for H16 RX-5, SBM, EBM Electric, and EL cameras)
Easily mounted and removed, this magazine can take 200 ft spools or up to 400 ft of film on rolls. It is used in conjunction with the MM or the WM winding motor, which ensures constant film tension. A counter indicates the length of film remaining unexposed. Weight of the magazine equipped with the MM motor: 1500 g.
Magazine with two centering hubs
Code: 266.001 CASFA

12 V take-up motor, model MM for filming speeds of 10 to 32 f.p.s. including 2 guide rollers for the camera and connection cable.
Code: 266.012 CAMEB

12 V take-up motor, model WM. 4-Position switch to adjust take-up speed to filming speed, from single frame to 50 f.p.s. Can be used with H16 EL cameras with serial numbers of 311.001 and above, with H16 RX-5, SB and SBM cameras equipped with ESM motors with serial numbers of 5001 and above or EM motors from the first series, supplied with integral connection cable and 2 guide rollers for the camera. Code: 266.023 CAMOT

2" core for 400 ft magazine (spare) 265.663 BOBBY
Cover for 400 ft magazine 266.110 HOUMO

Illustration 1.3: The 400ft magazine

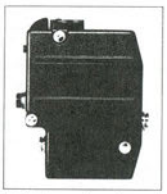
disadvantage of not being able to shoot scenes which are longer than the above mentioned durations.

However, several electric motors are available, for example: a) the EM motor which can transport film at speeds of 12 to 25 f.p.s. and which is designed for filming without synchronous sound recording; b) the ESM motor which runs at stabilized speeds - 10, 18, 24, 25, and 50 f.p.s. This motor can also be used for synchronous sound recording, supplied with a blimp to silence camera noise. See illustrations 1.4 and 1.5. In second hand equipment shops, additional motors can be found: motors which run from 12 to 64 f.p.s. interchangeable during the act of filming. All of these Bolex motors can be used for in-camera film rewinding - a very convenient feature as anyone who once had to manually rewind a large amount of film with the small rewind crank knows. To avoid fatigue and discomfort, it is advisable to build one's own, larger rewind crank, if a motor is unavailable, as the supplied crank is inconveniently small. Further, all of the Bolex motors can be operated with or without an optional pistol hand grip.

Illustrations 1.6 and 1.7 provide us with a clear guide to the exterior camera body. As you will note, the handle is positioned on top of the camera, allowing for a fairly tight grip when doing handheld work, especially since the free hand both supports the camera at the bottom and operates the release trigger. Personally, I prefer this style of handle over the pistol grip, because it allows for more direct contact, control and balance. The screws which fasten the handle should, however, be checked regularly, requiring occasional tightening if the handheld mode is used frequently.

EM motor

(for all H16 cameras equipped with the 1:1 spindle)
The EM motor has been designed for filming *without synchronous sound recording*. It drives the film at speeds of 12 to 25 f.p.s. It is powered by the 261.660 12 V/1.2 Ah power pack. The speed is set on the camera; it is therefore the camera's mechanical regulator



that determines the filming speed; an electronic current regulator prevents any overloading of the motor or camera.

Technical data

- Powered by 12 V/1.2 Ah battery (or any other DC source possessing the same characteristics).
- Socket for connecting to the winding mechanism of the 400 ft magazine.
- Remote control socket.
- Release by push-button or 265.005 remote control cable or the 263.110 hand grip.
- Reverse motion (only with 100 ft spools).
- The shutter is not automatically closed when the mechanism stops.

EM motor with complete standard equipment
Codes: 260.550 COPEN
The complete standard equipment comprises:
EM motor alone 260.001 MOTEM
12 V/1.2 Ah power pack carried slung over the shoulder; capacity:
1200 ft of film 261.660 ELPOW
Standard charger 261.880 ECHAR
"Electric" pistol hand grip 263.110 ELPOI

Illustration 1.4: The EM motor

The optical system is a reflex viewfinder. A sturdy, swivelling, misadjustment proof prism, mounted in front of the shutter, captures and transports the light. The image never flickers, is always visible and is, thus, a great convenience for the camera operator. The brightness of the image, of course, is determined by the f-stop to which you set the lens; and the viewfinder's image has a magnification of 14x. It is also correspondent to the 16mm projection field. The adjustable eyepiece has a range of +/-5 diopters. If dust spots appear on the viewfinder image, clean the eyepiece and/or glass prism, located behind the filter, directly in front of the shutter and filmplate. Such maintenance is made simple as the prism swings out, allowing for both sides of the prism to be cleaned with ease.

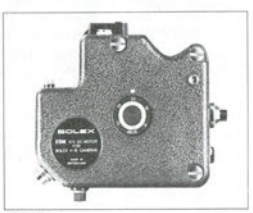
Note the small switch located on the side of the viewfinder which operates the light trap. The light trap must be closed every time you expose film without simultaneously looking through the viewfinder, as unwanted light can travel through the eyepiece onto the film (a frequent and costly mistake which occurs in the realm of both professional and personal filmmaking).

As mentioned earlier, non-reflex Bolex models, which are no longer manufactured, can still be purchased in used equipment stores; yet, they are particularly awkward, especially in situations requiring precise and complex optical printing work. Although I do not personally prefer or recommend their use for these purposes, these models can be used to attain equally satisfying results, while simply requiring more patience and determination from the film artist.

ESM self-regulating multi-speed motor

The ESM motor which fits onto all H16 cameras equipped with the 1:1 spindle is designed for filming *with synchronous sound recording*. This electronically regulated auxiliary motor drives the film at the perfectly stabilized speeds of 10, 18, 24, 25 and 50 f.p.s. It is used with the same crystal/sync pulse accessory as the H16 EBM Electric and EL cameras. It is provided with an automatic clapper device which fogs a few frames at the beginning of each take.

- Powered by 12 V Varta-Deac 10 × 10000 DKZ 1 Ah battery housed in the 261.001 power grip or in the 261.220 container with 265.010 power and remote control cable, or by the 261.660 12 V/1.2 Ah power pack.
- Nominal voltage: 12 V.
- Built-in release.
- External power socket.
- Remote control socket.
- Crystal/sync pulse socket.
- Automatic clapper.



- T2A fuse.
- The shutter is not automatically, closed when the mechanism stops.

	Codes:
ESM motor with complete standard equipment	260.660 ESMOT
The complete standard equipment comprises:	
ESM motor alone	260.111 MONUD
Power grip	261.001 PONAL
12 V Varta-Deac 10 × 1000 DKZ battery	261.110 BATEB
Battery charger with cables	261.330 CHAAV
Power and remote control cable for connection to the 261.220 battery container	265.010 CASOC
Variante	
ESM motor alone	260.111 MONUD
Power-pack	261.660 ELPOW
Battery charger	261.880 ECHAR
Remote control cable	265.005 ELTEL
"Electric" pistol hand grip	263.110 ELPOI

Illustration 1.5: The ESM multi-speed motor

The meter or foot counter located on the left side of the camera body indicates the amount of film which passes through the camera. When the counter is at the setting "m/ft" the camera is ready for loading. The length from "m/ft" to "0" must be advanced during the loading process, to ensure that the small amount of film which is briefly exposed to light during the loading of the daylight spool has passed to the take-up spool before shooting begins. The counter runs to a maximum of 30.5 meters or 100 feet. However, some film will remain on the filmspool beyond this point. This small amount of excess film is run through to the take-up, protecting the already exposed footage from additional exposure to unwanted light during removal of the filmspool. The counter snaps back to the "m/ft" setting every time the camera is opened, regardless of the amount of film exposed during shooting.

In terms of the precision work discussed later in this text, it is necessary to become acquainted with and accustomed to both the meter/feet and frame counters. In order to be able to both keep account of previous camera operations and to return to specific points in the shoot, it is advisable to mark the beginning of the film's exposure by setting these counters to a "0"/"0" position. The top frame counter is adjusted to "0" by turning the shaft which also takes up the rewind crank. This action will not effect the transport of the film. The frame counter runs to fifty and then starts with the "0" setting again. The bottom frame counter is adjusted by turning the wheel which is located directly under it. This frame counter runs to 1000. Although seemingly tedious, marking the film starts in the described manner prevents mistakes and errors when later working on complicated optical printing or special effects sequences.

Illustration 1.6: Side view of camera body

Note the shaft which engages and disengages the spring motor. You must disengage the spring motor in order to rewind film, either manually or by motor. Further, should you use an electrical motor for shooting purposes or a single-frame motor in conjunction with the optical printer, the spring motor must be disengaged, as well. To fully disengage the spring motor, the side release must be pushed all the way to the left to the "M" position.

The setting of the film speed has an effect on the ease of the rewinding mode. For all practical purposes, especially in conjunction with optical printing and the single frame motor, set the film speed to "64 f.p.s." The lower the film speed setting, the more strenuous is the rewinding. When winding the spring motor, turn the crank-handle counterclockwise. Be careful not to leave the side release in the "M" position before re-engaging the motor, as a runaway will result.

Bolex offers an optional RX-fader together with the crank-handle which produces exactly 40 frame long fade-ins and fade-outs by opening and closing the variable shutter handle. While Bolex claims the RX fader to be "essential for producing really professional fades and dissolves," the personal filmmaker will rarely feel a need for it.

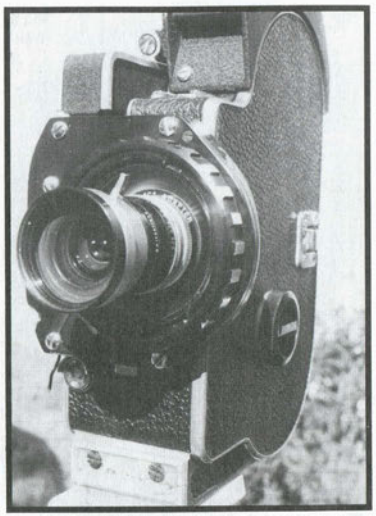


Illustration 1.7: Front view of camera body

The side-release offers, in addition to the "M" mode for a continuous run, the single frame mode denoted by the "P" setting at the rightmost position. The single frame exposure mode provides the filmmaker with two options. When the switch next to the speed setting is set to "I" (use the red mark on the small wheel for orientation), the single frame is exposed 1/50th of a second. When the switch is in the "T" position, the shutter will remain open as long as the side release is pushed and held in the "P" setting, allowing for an exposure time of any length. The setting of the speed wheel has no effect in this instance. Bolex offers an optional cable attachable to the side release for remote operation. I personally encountered too many problems with this cable to be able to recommend it. The front release on the front of the camera-body operates only the "forward" running mode; single frame exposure is not possible by use of this release.

The film speed can be set to 12, 16, 18, 24, 32, 48 and 64 f.p.s., according to the marks on the camera-body. All speeds in between are available, as well; however, in this instance, determining the exact speed being used remains a matter of guesswork.

It is possible to change the film speed while shooting; although speeding up or slowing down the rate will result in a change of exposure time, thus either darkening or brightening the image, respectively.

Just as a side note, it is also possible to expose film while rewinding it in the camera, both in the manual and motor-driven mode (of course, normally, this is never done, but for the sake of possibilities and creative

choices...). While a motor-drive guarantees a steady film speed, both in shooting and rewinding, manual rewinding will result in highly diverse film speeds, especially when using the small rewind crank provided by Bolex. As suggested earlier, a more stable rewind speed may be obtained with the use of a self-built and greatly extended rewind crank.

A clicking sound will be heard when running the spring motor. The Bolex gives an audible signal for each 24 frames of run-through film, if the switch inside the camera between the filmspools is set to it's appropriate position, otherwise it will run without a sound marker. In normal, 24 f.p.s. speed, the click will occur every second. In slow-motion, 48 f.p.s. for example, the click will occur twice as often or each half second, while in high-speed, 12 f.p.s. for example, the click will be heard every other second. This signal becomes very useful in helping one adjust to and anticipate the spring motor's limited, 24 second stretch run, especially when the filmmaker is looking through the viewfinder during the shooting process.

The variable shutter, which is operated by a small handle at the side, is surprisingly one of the most important features with regard to special effects and optical printing work. The handle allows the shutter to open and close at variable angles, either while the camera is running or stationary. I personally find the handle to be too small for easy operation and, therefore, generally extend it by attaching a strong wire. This becomes a virtual necessity when working with the camera on the optical printer and a single-frame motor. However, some camera motors, the ESM for example, do not allow the operation of the variable shutter at all.

In general, the variable (also called adjustable) shutter allows for the regulation of the amount of light which will expose the film, thus also enabling the filmmaker to achieve fade-ins and fade-outs. There are marks beside the shutter handle which read "1/2" and "1", indicating the f-stops by which an evermore closed or open shutter reduces or increases the film's exposure. For practical purposes, the variable shutter is useful in the following operations:

1. in reducing the amount of exposure to darken the image or to increase the lens aperture
2. in reducing the amount of exposure when the filmstock is too fast for the minimum aperture
3. in reducing the amount of light which reaches the film, while still maintaining a bright viewfinder image
4. in reducing the exposure while also reducing the depth of field
5. in implementing exposure changes: brightening or darkening without effecting the depth of field or focal length of the camera lens (These exposure changes may occur when panning between darkly and brightly lit scenes.)

A needle will disappear in the viewfinder to indicate when the shutter is completely open. The maximum opening is 135 degrees. The shutter closes when the camera stops and, theoretically, prevents light from falling on the single frame of film positioned in the camera gate. In practice, this is only true if the film does not stay in this position for more than a few seconds, for its remaining any time beyond this very brief period will result in a single, overexposed frame. This leakage will create a serious problem during special effects and optical printing work because of the multitude of different exposures, which the stock receives. Personally, I cover the lens by topping it with a cap and/or by wrapping black fabric around the front of the camera, when making adjustments or changes which require more than a few seconds of work.

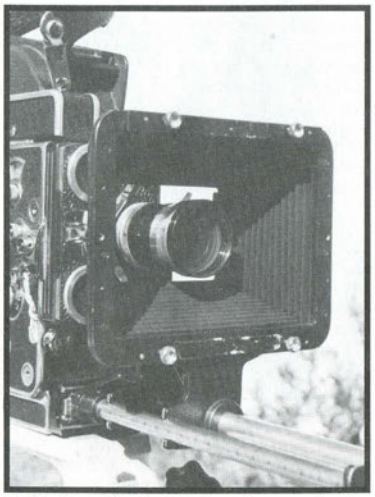


Illustration 1.8: Frontal view of camera body

Illustration 1.8 provides us with a frontal view of the camera body. As you may observe, next to the turret lies the built-in filter slot for a gelatine filter holder. To facilitate operation, the availability of a second, empty filter holder is advisable in case you have to remove the current filter. For example, in shoots under non-filter conditions, it is tedious and time consuming to remove the gelatine filter from the holder, only to then replace the now, empty filter holder back into the slot. Yet, this procedure is necessary to avoid any light leakage through the open filter slot onto the film. The additional filter holder or, for that matter, a piece of dark tape will allow you to easily and efficiently cover the filter slot when not requiring a filter.

The SMB models are somewhat improved insofar as the filter holder may be removed from the filmgate and, yet, still remain in the filter slot, thus preventing light from accidentally exposing film.

The filter holder, of course, opens up creative opportunities as well, by introducing the use of special, even self-fabricated filters. Be aware that the different densities of different filters influence the exposure of the film. The loss of light can be balanced by a change in f-stop at the lens aperture. To determine the density or the changes occurring by self-fabricated filters, use a lightmeter and simply measure the changes between a normal reading and a reading with the filter directly on the meter.

Again, the prism is located behind the filter slot. (For cleaning instructions, please return to page 13 in this chapter.) The prism must be clean as it effects the clarity of your image both in the viewfinder and, most importantly, on the film.

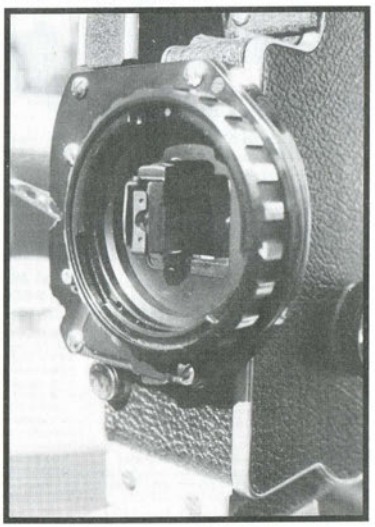
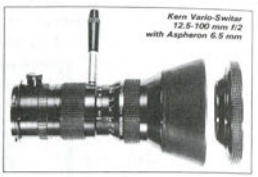


Illustration 1.9: Frontal view of camera body without lens

Lens selection, of course, is primarily determined by the filmmaker's needs. However, as most filmmaker's know, with regard to the assessment of lens types, fixed focal lenses generally provide better sharpness than zoom lenses. Bolex supplies a range of different fixed focal and zoom lenses, as seen in illustration 1.10 and 1.11, with and without automatic exposure controls. Characteristics of lenses in general are listed in the Technical Appendix B. As convenient as automated exposure control is during a fast and documentary-like shoot, unpleasant results frequently occur in situations where a radical and rapid light change occurs. For example, when panning from a brightly lit to a darkly lit area, the automatic control requires several frames to adjust to the change, resulting in an unpleasantly visible dragging effect.


Kern Vario-Switar 100 PTL
12.5-100 mm f/2
with Aspheron 6.5 mm


Kern Vario-Switar
12.5-100 mm f/2
with Aspheron 6.5 mm

Kern Vario-Switar 100 PTL 12.5-100 mm f/2 MC with Aspheron 6.5 mm

With an 8× zoom, a useful wide angle setting of 12.5 mm and the Aspheron 6.5 mm optical attachment, this is a multi-purpose lens.
It has a built-in TTL exposure meter and power zoom with variable speeds.
The lens has 19 elements and is multicoated (MC), so that an overall increase in contrast has been achieved, resulting in better shots particularly when filming against the light.

The most important technical features:

- Horizontal field angle from 41° (752‰) to 5½° (96‰). With the Aspheron 72° (1450‰).
- Geometric apertures from f/2 to f/16, with mark for photometric apertures (T-stop).
- Focusing from 1.2 m to infinity. A special control makes it possible to focus sharply at very short distances, particularly necessary when using the Aspheron wide-angle attachment.
- The Aspheron was designed specially for use with the Vario-Switar 100 PTL and, even with the diaphragm fully open, has a focusing range from 1 m to infinity and is practically distortion free.
- Two-blade automatic diaphragm — can also be set manually — with CdS photo-electric cell in the lens behind the zoom variator and centre-weighted measuring field over 2/3rds of the image area.

Vario-Switar 100 PTL 12.5-100 mm f/2 MC with Aspheron 6.5 mm and bayonet mount
Code: 221.130 VASPO

Same lens with "C" mount: price and delivery time on request.

Kern Vario-Switar 12.5-100 mm f/2 MC with Aspheron 6.5 mm

This lens optically identical to the Vario-Switar 100 PTL described above. The only differences are the following:

- Geometric apertures f/2 to f/22
- No automatic diaphragm
- No power zoom

Its use is therefore particularly recommended for the BOLEX H16 EL, because this camera is equipped with its own built-in TTL exposure meter.

Vario-Switar 12.5-100 mm f/2 MC with Aspheron 6.5 mm

"C" mount	Code: 221.123 NOCAF
Bayonet mount	Code: 221.125 NOUFA

Kern fixed focal length lenses

Kern lenses incorporate an exclusive automatic depth-of-field scale (Visifocus – orange dots).

Wide-angle SWITAR 10 mm f/1.6 RX MC

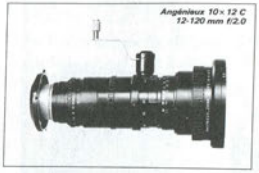
Standard MACRO-SWITAR 26 mm f/1.1 RX MC

Telephoto MACRO-SWITAR 75 mm f/1.9 MC

Horizontal field angle	52° = 965‰	21° = 371‰	7° = 129‰
Relative magnification	0.4 ×	1 ×	3 ×
Focusing range	8"- ∞	(7½") 20"- ∞	(2'6") 5'- ∞
Diaphragm preselection device	★	★	★
Dual-range extension for macrofilming		★	★
Filters series	5.5	5.5	6
• with "C" mount	220.103 PIASE *220.101* COASE*	220.263 PIENO *220.261* COTNO*	220.754 TRETA
• with "C" mount + bayonet adapter	220.105 PIABA *220.104* COABA*	220.265 PIEBE *220.264* COTBE*	220.755 TRELO

* Scale in metres on the distance ring.

Illustration 1.10: Lenses recommended by Bolex


Angénieux 10× 12 C
12-120 mm f/2.0

Angénieux 10× 12 C 12-120 mm f/2.0

Horizontal field angle (projector aperture): 44° = 804 ‰ to 4½° = 80 ‰

This lens is outstanding for its very big focal length ratio (10 times), making it possible, by means of a crank handle, to change smoothly from a focal length of 12 to 120 mm. Focusing range from ∞ to 1.50 m; with close-up attachments from 1.55 and 0.65 m. Geometric and photometric apertures indicated on the diaphragm ring.

Angénieux 10× 12 C	Codes:
• with "C" mount	222.120 ANGOM
• with "C" mount + bayonet adapter	222.121 ANOBA
Close-up attachment No 1 for filming between 1.55 and 0.85 m	222.903 ANGEB
Close-up attachment No 2 for filming between 0.87 and 0.65 m	222.905 ANGAN
Close-up attachment for the two Vario Switar lenses for filming between 1.10 m and 0.70 m	221.901 BONET

Filtres ASA series 9 for the two Vario-Switar and Angénieux 10 × 12 C lenses

yellow	267.001 VAUNE
neutral density	267.003 VAGRI
UV	267.005 VAPUV
conversion 85	267.007 VAVER
conversion 85 B	267.009 VACON

"C" mount
Lens seat/film plane distance: 17.52 mm. Thread: 1" (25.4 mm).

Bayonet mount
Bearing on three small tongues. Centering diameter: 60 mm. Distance between bearing plane of tongues and lens focal plane: 23.22 mm

"C" mount → bayonet mount adapter
"C" mount lenses can be used on the bayonet lens mount by means of a suitable adapter.
Code: 265.662 ADSIM

Illustration 1.11: Zoom lens

The matte box (as seen in Illustration 1.12 and 1.13) is mounted to the camera body at the appropriate slot located at the front/bottom of the camera, with a single screw attachment. This mount is protected against corrosion by a removable part, yet should be cleaned regularly. Instructions regarding the multiple uses of the matte box (also called the bellows lens hood) are available in subsequent chapters. Matte boxes come in several sizes to accommodate different lenses.

Two threaded holes for different size tripods screws are located at the bottom of the camera body. For precision work, the application of both screws is recommended, especially if the set-up requires multiple exposures and mask operation, thus decreasing the danger of slippage or any slight movement of the camera on the tripod. Some tripods allow for the use of two screws. Bolex provides optional adapters to use with their own tripod which guarantee shift-free operation.

Again, why is it necessary to know in such detail both the method of operation and the supplemental features of your camera? All features constitute the creative freedom and potential available to the filmmaker. The filmmaker can only create and enhance his or her vision through the application of film technology, through the use of what the camera has to offer. The

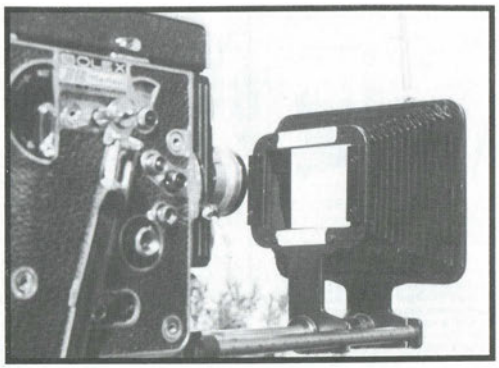


Illustration 1.12: Matte Box, back view

following list could not possibly take into consideration the large spectrum of creative possibilities available to the filmmaker, for that is additionally an individual matter; however, this guideline does provide an essential review of the technical capabilities of the Bolex which will help each of us render and perhaps enlarge our own personal vision as film artists.

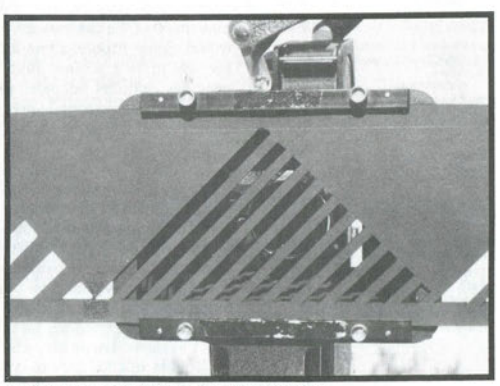


Illustration 1.13: Matte Box, frontal view

In summary, these are the principal features of the Bolex models discussed in this chapter.

1. **The Bolex offers flexibility in film speeds ranging from prolonged exposure of a single frame to 64 f.p.s. slow motion. Further, the speed may be altered while actually filming.**

2. **Fade-ins and fade-outs of a variable duration may be achieved, from as short as a two single frame effect to as long as the entire length of the film roll used.**

3. **The wide array of different filters allows for greater experimentation with the image quality.**

4. **Multiple exposures and superimpositions may be accomplished with relative ease by rewinding the film. Multiple exposure possibilities run from the common double exposure to up to twenty exposures/superimpositions (generally considered the photographic and material limit).**

5. **The matte-box and the endless variety of prefabricated and self-fabricated mattes and filters allow for greater image manipulation.**

6. **The large body of zoom and fixed-focal lenses provided, again, enable the filmmaker to achieve a pre-visualized image with ease.**

7. **The construction of the Bolex allows for comfortable and steady hand-held work as well as convenient tripod operation.**

8. **The spring driven motor allows for greater independence while shooting, yet is easily disengaged when an electrical motor better suits the needs of the filmmaker.**

These creative possibilities are complemented by a wide choice of different film stocks and lab operations, as well as by the use of an optical printer - a subject which will be discussed in detail later in this text. Clearly, one's creative vocabulary and, thus, means of artistic expression become enlarged by simply combining only a few of the above options. It is this technical reservoir from which the filmmaker builds his film, from which the form of any artistic thought or expression is determined and realized, whether the film is a structural, experimental, visionary, poetic, fictional or realistic work, with or without a traditional narrative plot and story line. Different artistic conceptions and visions both deserve and require different "filmic translations," different "filmic forms." In order to express oneself most effectively and powerfully as a filmmaker, one has to be fully aware of the technical opportunities available. It is these various technical elements which in my mind work as the"single letters of a filmic

language"and allow the filmmaker to create "filmic words" and "filmic sentences and structures" to transport and communicate his or her own unique vision and ideas.

Chapter Two

2

Achieving Special Effects with the Bolex

This chapter elaborates on the special effects techniques available to the Bolex user. It introduces the reader to the richness of the filmic language.

Because of the multitude of technical possibilities and options which it offers, the Bolex has become the personal filmmaker's favorite camera. The camera is essentially unique, possessing the capability to produce a wide array of filmic effects, thus allowing the film artist to express his or her ideas with greater accuracy and ease. Each of the technical devices described in the following pages constitutes a "letter of filmic vocabulary." In the interest of enhancing one's own artistic and personal freedom, the filmmaker should review this chapter, thoroughly. Becoming aware of the richness of the "filmic language", of its "letters," the filmmaker is capable of executing his vision or message with maximum impact and effectiveness. While this chapter provides a general, basic overview of the special effects techniques available to the Bolex user, the Chapter Six entitled "Illustrative Examples: A Visual Guide of Model Works in Special Effects" discusses, in detail, specific applications, procedures and techniques in special effects work through a study of my own filmic texts.

To begin, a preeminent feature of the Bolex is the flexibility offered in the generation of precise double and multiple exposures/superimpositions - an aspect of the filmic language which I value as one of the most beautiful and intriguing means of filmic expression. Multiple exposures/superimpositions allow the filmmaker to combine different images which can be thousands of years, miles and worlds apart. Images which are absolutely disparate in terms of content may be combined to

render a new image, a new meaning, a new content; yet, each component image will maintain some distinction as the act of superimposition does not disguise the creative act. Rather, herein lies the creative act, for traces of the individual images are at once visible and changing at the same moment, creating a new visual message before the spectator. The unreal character of superimpositions sustains a visual impact provoking immediate and continued interest in the image and the newly generated meaning. The combination of different subject matters is naturally unlimited: striking superimpositions may be achieved through vastly different images, as well as through similar or almost identical images. The visual impression alone endows a sense of the unknown, of the mysterious and of the familiar, perhaps mundane images and their content. Superimpositions add a dream-like or poetic quality to an image. They are often musical in their tenor, visionary, both reality enhancing and interpreting.

The filmic experience occurs on many different levels: on the level of the plot and narrative line, on the level of the actor's performance, on the level of technical brilliance and sophistication, from the camera work, to the editing, to the sound mix. Beyond what we conceive to be the world of popular, commercial cinema, is the world of personal filmmaking and its additional artistic concerns and considerations: in the creation of perceptual experiments, structural and visual orchestrations, and/or enigmatic, visual poems which possess a hidden relevance known only to the filmmaker.

A film may be structurally conceived in that the text's process and progression are the primary subject matter. Structural constructions may serve as a means of creating connections between images and scenes either graphically or narratively, or may act as an aesthetic design to distinguish a particular sequence within an entire work. In-camera editing and, specifically, the superimposition remain as two primary techniques used by the filmmaker with structural concerns. Developing a sensitivity to structure beyond the traditional narrative demands allows the filmmaker to creatively enrich the filmic experience. Structural constructions, whether overt or subtle, create a rhythm which drives the film and effects the viewer in a sensual manner, comparable to the impact of music upon the listener. While the spectator, in many instances, may not follow the structural design of a film consciously, he or she will react subconsciously to the particular pace or flow created, feeling comfortable with the text's development, or perhaps disturbed, agitated.

In order to accomplish multiple exposures/superimpositions which enhance or emphasize the structural design of a film, one must become familiar with in-camera editing. In-camera editing requires an ability to preconceive a scene or sequence, as the film is actually edited during the process of shooting. All effects created in this manner cannot be re-edited on the editing table. The filmmaker must know precisely

where a cut, fade, super/multiple exposure will occur and how to successfully implement the desired effect. If the proper techniques are learned, however, this method of shooting becomes quite cost efficient. With the completion of the shooting process, the filmmaker has only to send his work to the lab for processing. The returned footage will be the finished film. No further editing is needed or, for that matter, possible without generating additional expense through subsequent lab work, to compensate for your own shooting errors. To a great extent, this method of filmmaking is not applicable or practical for more traditional narrative productions. Yet, it is an effective and economical approach within the experimental/personal genre, which simultaneously educates and disciplines the filmmaker in terms of preplanning, technique and craft. It becomes vital to produce detailed storyboards/scripts, as well as to record the technical data involved in your production with specific attention to the feet and frame counters, to the duration of fades, to the f–stop settings, to the feet and frame numbers at the end of an operation, etc. Any mistakes in this process will force the filmmaker to repeat all previous exposures.

For high precision work, it is necessary to sync or mark the film to the meter/feet and frame counters of the camera. Marking the film either through a hole punch or written symbol provides the best protection. To line up a mark on a single frame of the film at the camera gate (or at any other prominent location) with the zero position on the various counters is, perhaps, the easiest method of ensuring an accurate and easily retrieved sync mark, despite the opening of the camera at the completion of the shoot which will automatically reset the counters or the hazards of a rewind which might remove the film from the sprockets. Regardless, such single-frame precision becomes virtually crucial in sophisticated optical printing work.

The practical limit of exposure passes/runs seems to be around 20 times. Exposure runs beyond this point cause an ever increasing damage to the film perforations. Twenty exposures require nineteen rewinds; however, additional stress on the perforations may be avoided by using a darkroom. There, the film can easily be removed from the camera and rewound on separate equipment. If a darkroom is unavailable to the filmmaker, one may manufacture a small rewind plate suited to pick up two 100' daylight spools and which can be used manually inside a camera bag. The photographic limit, in addition to the physical limit of the film material, also seems to be located at twenty exposures. Exceeding beyond twenty runs may end in overexposure or the absence of several component images. Of course, the quality of the subject which you are photographing will determine the amount of exposures tolerated. An image dominated by dark or shaded areas will accept more exposures than an image which is overwhelmingly bright. Logically, the photographed image of a room with an exposure disparity between the

left and right sides will engender specific challenges for the filmmaker. The darker portion of the image will accept additional exposures which will be visible after processing; however, the well-exposed, bright area will not provide such clearly defined supers.

The very first exposure is generally the most apparent of all the subsequent runs, provided all exposures are executed under equivalent conditions, such as the same aperture setting, the same quality and amount of light, etc. Each additional exposure will become incrementally less visible. Despite the straight mathematical equation involved in executing successful multiple exposures, in which the amount of light and the desired f-stop are divided by the number of exposures, the precision of this methodology is evident in terms of image clarity up to the sixth exposure.

For example, if the correct exposure for a particular subject were read at f5.6, a double exposure composed of that subject and another subject of a comparable exposure value would require an f-stop setting of f8, in order for the two exposure runs to engender the desired effect. Obviously, in accomplishing this double exposure, the filmmaker exposes the same portion of film twice. Using the correct exposure setting, f5.6, for each composite subject of the final image would, however, result in over-exposure of the stock, for the film accepts twice the amount of light necessary to attain the super in each pass. The amount of light must be reduced by 1/2 in order to expose each subject equally and produce a correctly exposed super. Remember, when shutting down one full f-stop, the amount of light entering the aperture is cut by 1/2, when opening up one full f-stop, the amount of light is doubled. Consider how the factors would change, if you desired a four-time exposure with the third and fourth subject possessing the correct exposure reading of f5.6. Each pass would require a setting of f11.

Experience becomes the guideline in cases where one has shut down or opened up as much as the camera will allow. In achieving an eleven-time exposure, while using the variables of our model, I would suggest a setting of f16 to f22 for each exposure run. Again, the mathematical calculation has limitations; and trial and error as well as shooting logic must become your tools. Perhaps, an accurate f-stop reading could be derived in this instance with the use of an ND filter, the manipulation of the variable shutter, an alteration in the shooting speed, etc. You must think creatively.

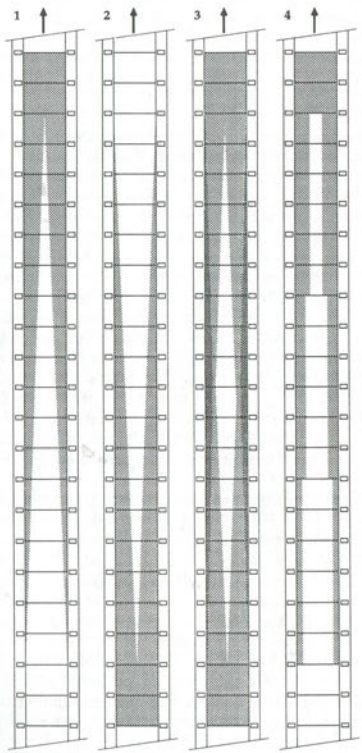
ND (neutral density) filters are frequently used to reduce exposure, for they do not alter the quality or color of the image. They are available in a number of gradations/densities. Each 0.1 ND is equivalent to 1/3 of a stop; therefore, a 0.3 ND reduces the amount of light entering the aperture by one full stop. The primary drawback to their use is the

resultant dimming of the viewfinder image. Thus, when using a number of ND filters to elicit the correct exposure, it becomes necessary to remove the filter holder from the filter slot, in order to obtain a bright viewfinder image desirable for focusing and setting up the shot. Additionally, it may also become necessary to open the lens aperture. Remember to return to the original set-up before actually exposing the film.

As with a painting, one may desire to emphasize a particular layer or area of the composite/multiply exposed image. For example, should you desire the third exposure of your super to be the most prominent, then the image should be exposed at least 1/2 stop more than the other images. In certain instances, perhaps even more than a full stop will achieve the desired effect. A brighter image can be achieved by opening up the lens, by presetting the variable shutter to a more open setting, or by using fewer ND filters than those employed on previous and subsequent runs. While f-stop alterations applied within a shot are often visible as sudden changes, manipulation of the variable shutter elicits smooth, gradual changes which are less evident. Also, remember that an f-stop change impacts upon the image's depth of field, specifically the type of lens used determines the extent of this effect. The Technical Appendix which completes the text will provide the proper guidelines in anticipating depth of field changes with f-stop manipulation. Again, the manner in which you choose to achieve image brightness will depend upon the shooting situation and the most practical course of action.

When working with multiple exposures, it is prudent to use filmstock with the lowest ASA or DIN reading, in other words the least light sensitive material available. In comparison to high speed varieties, grain and sharpness are generally superior in low speed stock. Further, the lower the light sensitivity, the more latitude the filmmaker possesses in terms of the amount of exposures which can be accomplished successfully, without resort to the use of ND filters or small lens apertures. This advantage cannot be overestimated when one considers the additional work required by the filmmaker when using ND filters or smaller aperture settings, for the viewfinder image is perceptibly darker and generally obscured to the extent that the time for preplanning an exposure is markedly increased. Also, as a general rule, lenses are usually designed to best function between the f5.6 to f8 range.

The Bolex' variable shutter becomes an almost indispensable tool for creative, imaginative expression, especially when working with multiple exposures/superimpositions. As stated previously, the variable shutter allows one to engender fade-ins and fade-outs. During the process of creating multiple exposures, a fade-in/fade-out effectively becomes a dissolve. See Illustration 2.1. In-Camera fade-ins from black or fade-outs to black can only be achieved through an application of the variable shutter, as closing down the lens aperture will not accomplish the desired



Filmstrip 1 shows an 18-frame long fade-in from black to full image with variable shutter.

Filmstrip 2 shows an 18-frame long fade-out from full image to black with variable shutter.

Filmstrip 3 shows an 18-frame long dissolve (fade-in and fade-out at the same place, after rewinding the film) with variable shutter.

Filmstrip 4 shows a "fade-in" accomplished by opening a lens, which has fixed f-stops. The fade-ins occur in "steps" rather than smooth.

Illustration 2.1: Fade-ins and Fade-outs

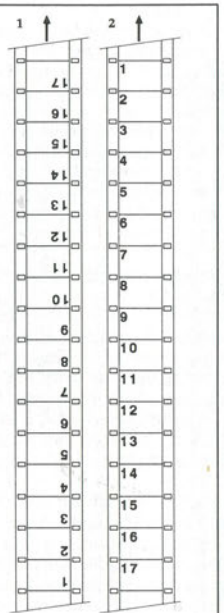
smoothness or the necessary screen black. The shutter is operated by pulling out the handle at the side of the camera body. An upward movement will achieve a fade-in, while a steady, downward movement will achieve a fade-out. The shutter handle should be returned to its place inside the camera body when not in use to prevent any accidental movement while shooting.

Layered images fading in and out over one another with grace and fluidity add a uniquely mystic and poetic dimension to our filmic vocabulary. These effects allow one to compose visual music, with passages of images which grow in and out of one another, which elusively appear and disappear as a refrain, which crescendo with the multiplicity of their components. Certainly, the impulse to create visual music is discovered in the beginnings of film history with the French Impressionist School and the graphic works of Eggeling and Richter. While some film artists prefer to create a direct, visual translation of a particular musical selection, or perhaps an animated or abstract interpretation of a pre-written score, others create a music-like visuality without reference to a pre-existing soundtrack using concrete, non-abstract, non-animated imagery.

Remember that in-camera editing is not the only method offered to the filmmaker who desires to create effective supers. At a much higher expense, one can attain the same results through multiple-roll editing with processing at a film lab. Bypassing the rewinding process, the filmmaker shoots each image layer on a separate roll of film. Thus, a triple exposure achieved in-camera entails rewinding the stock twice after the initial exposures, whereas in a lab, the same triple exposure would be achieved by printing the composite, in sync images from rolls A, B and C onto an answer print. Additional information concerning film labs and their capabilities is contained in the following chapter.

Double-perforated filmstock should be used to increase your creative options. Several special effects may be achieved only through use of double perforated stock. For example, reverse or backward movement is accomplished by holding or placing the camera upside down. When assembling your workprint, remember that the head of the shot becomes the tail of the shot, in order to attain the desired effect of reversed motion and to maintain normal top and bottom frame positioning. In other words, literally turning the footage around positions the first frame of exposure, which photographed the beginning of the movement, at the tail of the shot. Thus, the beginning of the movement filmed in real time will now read as the end of the movement through the altered positioning of the camera and the manipulation of the footage. Obviously, the final frame of exposure, which recorded the literal end of the filmed movement, will now read as the beginning of the movement. See Illustration 2.2.

What I refer to as the "playing card effect" remains as one of the most interesting options available to the personal filmmaker. A subject filmed in its normal position (top up/bottom down) may then be re-photographed through a successive exposure run to create a double-exposure/superimposition in which the original image shares the frame with its mirror image in a reversed position. In other words, layered over the initial subject is its second exposure in which the top and bottom of the



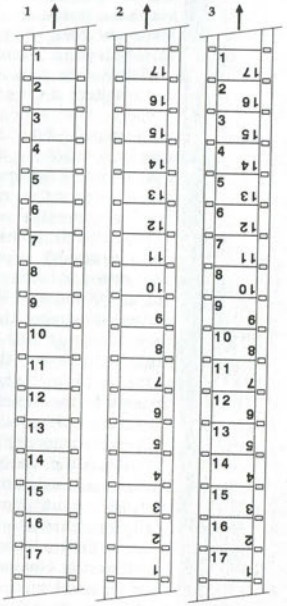
Filmstrip 1 shows the exposed film when shot with the camera turned bottom up.

Filmstrip 2 shows this very film after it has been "turned around": while frame 1 had been the first to be exposed, it now becomes the last one, thus reversing the movements: Whatever happened in the beginning, now happens at the end.

Illustration 2.2: Reversing

frame are reversed, in which the left and right sides have also been switched. Depending upon the suitability of the subject filmed, this effect engenders interesting, symmetrical patterns with an almost kaleidoscopic quality when the exposure runs are multiple. Again, the process involved in achieving this type of imagery requires careful preplanning and an easily identifiable first frame mark. After determining the number of exposures desired, shoot your first exposure run. Remove the exposed film on the full take-up reel and load and thread it as if it were new footage on the supply spool. Remember that what was previously the last frame of your first exposure has become the first frame of your second exposure. Similarly, the first frame of your first exposure has become the last frame of your second exposure. The re-threading of an exposed, tails-out load will essentially reverse both the left and right sides, as well as the top/bottom orientation of the subject upon its second exposure. See Illustration 2.3.

The importance of the preplanning process when working with multiple exposures/superimpositions can be overestimated, especially after one has learned the rules and effectively garnered the desired results. Very much like any creative act, whether it be writing or painting, the basic rules of filmmaking must be learned as a means to develop your own proficiency. However, quite frequently it is advisable to go out into the field without worry or concern over the correct methods, procedures. The unpredictability of such shooting may give rise to images which could not have been imagined or prefabricated. In multiple exposure work,



Filmstrip 1 shows a regularly exposed film, frame 1 indicating the first exposed frame, frame 17 the last one.

Filmstrip 2 shows the same filmstrip after being turned around and placed in the camera after it has been fully exposed once. Frame 17 now becomes the first frame to be exposed.. It is turned bottoms up.

Filmstrip 3 shows the finished film in double exposure/superimposition: frame 1 of the first exposure now has frame 17 bottoms up of the second exposure superimposed. Sides are switched, what has been on the bottom right side now appears on the top left side. However, the film has not been flipped and letters still would be readable from left to right in the first exposure.

Illustration 2.3: Double Exposure/ Superimposition

one can discover startling beauty in a single frame or small stretch of footage. These images can be further explored with the optical printer. And as suggested previously, the wider latitude of slow speed stock frequently compensates for marginal exposure errors - it becomes rather difficult to produce completely unusable results. Additionally, overexposed material is often striking, containing the beauty of washed out colors and diminished contrasts. Underexposed footage may contain dark, secretive areas of mystery.

Another means of enhancing the visual variety of your work in multiple exposures/superimpositions is through the use of the different lenses, as the example in illustration 2.4 shows. For example, moving either in- or out-of-focus during a particular exposure will establish an additional visual rhythm within your super. Further, from the first to the

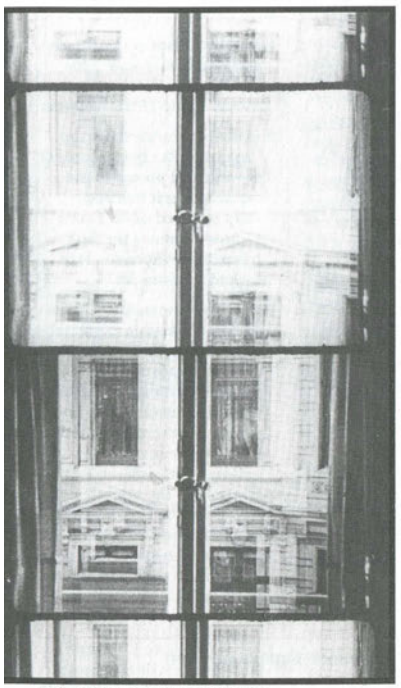


Illustration 2.4: Nachtwache

second exposure of the very same image/scene, you might change the focal length imperceptibly during a slow fade-in. The resultant effect will present the second image growing out of the previous exposure. In this instance, if the tripod has remained in the same position, the image will have a center from which each successive exposure grows and radiates out to the edges of the frame. Remember that the whole range of focal lengths, from the extreme long shot through to the extreme close-up, offers an enlarged "vocabulary" to the film artist. Varied shot size, zoom duration and dolly work necessarily enrich the progress of the traditional, narrative film. Similarly, these technical possibilities should be employed by the personal filmmaker who constantly seeks an original image, an image which articulates his/her individual vision. Explore the various film speeds offered on the Bolex models. One may engage in extreme, time-lapse photography or perhaps film in slow-motion at 64 f.p.s., when creating multiply exposed images. Imagine the visual possibilities offered in a super composed of images filmed at vastly different speeds!

The Bolex camera has the capability of creating single-frame exposures, enabling the filmmaker to shoot long sections of film in which each single frame is either slightly or completely different from the preceding one. New visual impressions and challenges grow out of such an approach. Twenty seconds of screen time can contain as many as 480 distinct frames - all achieved in one exposure run.

A flood of individual images sustained for several minutes.... Although such a film might seem unwatchable in terms of our ability to distinguish and process each frame, consider the impact of those images which can be seen and remembered. What makes certain images/frames more memorable than others? How do colors influence our acceptance of particular imagery?

Investigate the options available in both handheld and tripod supported work. A tripod may be tilted and panned at a variety of speeds, positioned at a variety of angles. Hand held footage often translates your impressions in a strong, visceral manner, but therefore, should be used purposefully.

The filter holder allows one to explore another set of creative options. The Bolex filter holder normally carries a maximum of four Wratten or ND filters. As indicated earlier, the filmmaker may also create his/her own filters, but should attend to their proper sizing with the holder. Significantly, changes in the lens aperture will have a dramatic effect on any filter placed in the position of the filter slot, between the lens and filmplane. Additional filters may be placed in front of the lens, but the sharpness of the image will be effected. Filters can be created from any material deemed useful by the filmmaker. You may wish to dramatically alter the color of the image, using filters with colored glazes. Additionally, an oily substance moving slowly up and down between two plates of glass, when placed in front of the lens, will give your image an hypnotic look. Similarly, an ordinary ashtray or drinking glass may become the perfect creative tools when seeking filters which meet your needs. Remember that all filters have specific densities which, in turn, effect both the film's exposure time and the camera's f-stop setting. Again, determining the exposure change produced by a homemade filter requires placement of the object in front of your lightmeter for direct measurement.

Mattes or masks may be similarly used to manipulate your imagery, enhance the creative possibilities. The Bolex' matte-box, available in different sizes to accommodate different fixed-focal and zoom lenses, greatly facilitates working with mattes of any design, of a pre-fabricated and/or self-manufactured variety. See illustrations 2.5 and 2.6. Mattes block out and, thus, leave unexposed a portion of the photographed image. This unexposed area becomes available for exposure during subsequent runs. Therefore, the film is rewound for additional exposures, in order to fill the previously concealed image-section. Because the previously exposed portion of the image is, in turn, blocked out by the matte as you fill the unexposed area, the f-stop is not adjusted as in multiple exposure work. In other words, each successive exposure run acts as a single exposure, for only an unexposed portion of film is accepting light. Your initial f-stop setting will remain constant.

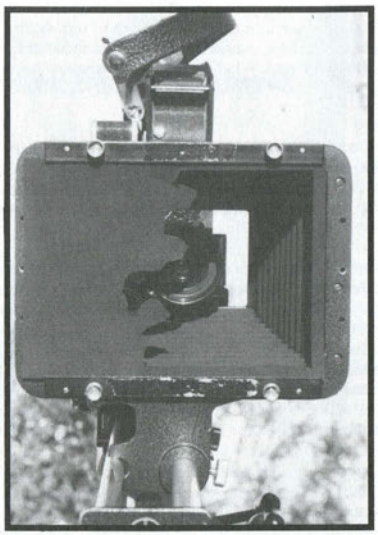


Illustration 2.5: Self-manufactured Matte

Black cardboard is perhaps the most useful material available, when designing and making your own mattes, as it eliminates unwanted reflections and effectively blocks out unwanted light. Again, your own imagination determines how effectively and creatively you work with this unique tool. As the preceding photo illustrates, you may construct mattes of a complementary scale and pattern. However, you are not limited to the use of two, interlocking mattes, but may develop a system of several which allow for the exposure of an image, one small fragment at a time. Of course, the latter approach would require several exposure runs. Further, mattes have an application in creating multiple exposures. After completing a full image with your mattes, you may wish to layer that initial image with another "matte-designed" effect. Or, you might create overlapping mattes, which by nature of their design require multiple exposure work. In either case, determining the proper f-stop requires the preplanning discussed earlier in this chapter - you must know how many multiply exposed layers you wish to create in order to devise the proper setting.

Our familiarity with matte work as spectators is most likely developed out of our experience of traditional, narrative cinema. Mattes are generally used to create a keyhole or binocular effect and, ever increasingly, are designed to simulate the "real" setting of a film. Matte-paintings provide filmmakers with a cost-effective solution, when confronted with the problems of shooting at inconvenient and/or expensive locations. Further, the historical re-creation and science-fiction genres essentially rely on matte-paintings to supply the film with an environment which is no longer extant or completely fictive. A current trend in popular films is

the narrative which requires an actor to play multiple roles within one scene - in other words, to play opposite himself. In this instance, complementary mattes and careful blocking for your talent are a necessity. Although such a narrative possibility is rarely entertained in the realm of personal filmmaking, it is my secret fantasy to discover the perfect actor, a master of his craft who additionally understands the technical demands and challenges of non-traditional filmmaking. Cast in my film, this talented individual will intuitively know how to deliver a scene within a triple-exposure/superimposition, possibly acting opposite his own image garnered from a previous exposure. With great flexibility, the actor will be able to time his performance to a normal, 24 f.p.s. shoot, as well as to a 64 f.p.s. shoot. Single frame work will not tax him, nor will perceptual experiments. To an extent, my fantasy film reveals not only the many challenges involved with bringing live, performance-oriented talent into this alternative form of filmmaking, but also the formal barriers which still exist between traditional and experimental venues. As filmmakers engaged in an alternative practice, we often preclude the use of actors when creating visual poems or structural texts. People will appear in our work; but, performance is not an element of their appearance. Further, actors are simply not trained to consider filmic possibilities extending beyond their encounters with commercial cinema. But, the possibility remains....

Illustration 2.6: Mirrored Matte

Back to the reality of mattes. It is wise to outfit your matte box with legible scales located on each side. This practice enables you to design mattes which match perfectly and to avoid the visibility of the separation line. In most instances, the above procedure will ensure that the matte will be slightly out of focus, due to the proximity of the lens and the precisely

fitted matte. However, before proceeding, please consider the variables of the filmstock, the f-stop setting and, most importantly, the characteristic of your lens which might effect a change in depth of field.

As illustration 1.13 illustrates, the filmmaker may design moving mattes which can be pulled sideways in front of the matte box or, for that matter, in a variety of directions, during the shooting process. These mattes work to alternatively block and open various portions of the image during a single exposure run, thus creating a sense of liquid motion within a surprising variety of imagery. Experiment with combinations of moving mattes and colored filters over successive exposure runs, to further enrich your multiple exposure work.

Most matte boxes are capable of securing mattes at both ends of the bellow, thus allowing you to develop a network of mattes which move in relation to one another, spatially. Traditionally, the matte box is used solely on a tripod secured camera in a stationary position. However, mattes create exciting effects in handheld work as well as with zooms, pans, tilts, etc.

To conclude, I would like to review one of the most common and historically popular special effects - the stop trick. It is generally surmised that the stop trick was discovered by the ubiquitous George Melies, filmmaker, cameraman, showperson, distributor and exhibitor. While shooting a Parisian street scene, Melies' camera jammed. He quickly repaired the problem and resumed filming at the very same location. At the time of the film's projection, Melies discovered that the malfunction had produced an interesting, magical effect. Preceding the camera problem, the filmmaker had been photographing a pedestrian, while upon re-shooting he had filmed a horse drawn carriage. When the footage was projected, however, the man seemed to disappear into thin air during his passage, only to be replaced by the carriage which metamorphosed out of nothingness. You may create a comparable image in which one subject is mysteriously replaced by another, or in which a subject mysteriously appears or disappears out of thin air, by simply stopping the camera during an exposure. Replace the initial subject with another or simply remove the initial subject and capture the resultant void when you resume shooting. Both your location and camera position must remain fixed before and after the stop, if you desire an effective replacement effect. This technique also allows one to endow inanimate objects with movement. Cookies can climb out of a cookie-jar and onto a plate. Melies achieved several pixilated films during his lifetime, while modern special effects work still employs the basic principle of the stop trick through computer controlled camera movements and models, most specifically in the field of animation.

Chapter Three

3

Film Stock, Editing and the Film Lab

This chapter addresses questions regarding filmstock selection, supplies unusual options in editing techniques and stresses the importance of developing a solid working relationship with a film lab.

When producing your film independently, economic concerns often influence and determine your creative decisions. With regards to filmstock, the personal filmmaker frequently selects reversal stock over negative, despite the professional status of the latter.

Negative stock requires the printing of a daily or workprint to enable the filmmaker to examine and evaluate his/her material - its technical and artistic quality. Reversal original, however, provides a clear, readable image for study. Thus, it is often unnecessary to go to the expense of a workprint, especially if you have edited the footage in-camera, producing a virtually picture-ready film. In this instance, remember to handle your original carefully. Keep the work area and the editing equipment clean, to avoid accidental scratches. Although reversal originals may be run through an editing table without becoming scratched, it is not recommended to screen your original via a projector.

As mentioned previously, negative is the industry choice of stock, for it provides greater and safer latitude in exposure. Further, negative is an efficient selection with regard to mass-distribution - a situation which is rarely pertinent for the personal filmmaker who generally requires no more than three to four prints. When very few release prints are needed, reversal stock remains the most economical option. Further, if a larger distribution is necessary at a later time, it is possible to strike a negative-dupe from the reversal original. This negative will then be the template

from which mass prints will be produced.

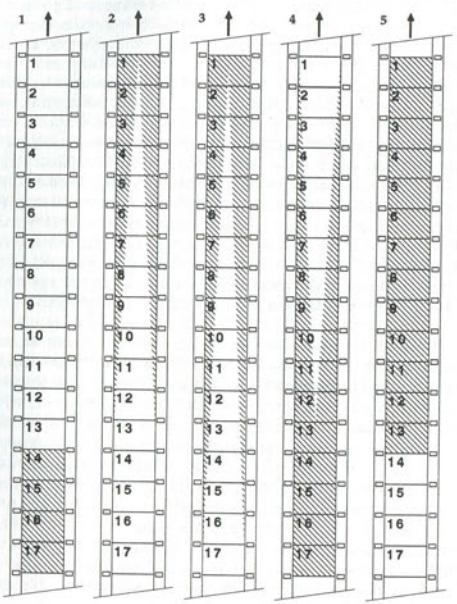
Until a few years ago film suppliers manufactured slow speed, reversal color stock, such as ECO Eastman Commercial, which I found perfectly suited to multiple exposure filmmaking and optical printing. Unfortunately, these particular stocks with low sensitivity are being systematically phased out, due to an increased demand within the news industry for faster film. Thus, reversal stocks in the medium-sensitive range have supplanted the slow speed variety. (Please consult the Technical Appendix for a complete list of film stocks and their technical data sheets as supplied by their manufacturers: Eastman Kodak, Fuji, and Agfa Gevaert.)

Financial considerations aside, the conditions of principle photography are an equally significant factor in the selection of an appropriate film stock. Consider the variables of your shoot: the time of day or night, the lighting design, the number of exposures/supers required, the effect of optical printing, for example. Again, as a general rule, if a number of exposure runs are planned, a slower stock should be used in order to avoid the use of ND filters and thus to preclude the difficulties of a darkened viewfinder.

Generally, reversal (or positive) stock becomes a necessity when you plan to use your exposed footage in subsequent work on the optical printer. The reversal original provides the best possible picture quality for further printing steps. If negative stock were used in this instance, a timed print from the original negative would be used. However, this print would already be one generation away from the original, and thus, of a reduced picture quality in the optical printing phase. Each printing step lessens the quality of the image; therefore, it is desirable to work with originals in optical printing for the best results.

However, if a wide distribution of an optically printed work is expected, as discussed earlier, it is more economical to have prints made from negative. When an increasing number of prints are needed, negative may be used as the camera-original, threaded in the Bolex during the optical printing phase, with the reversal original located on the side of the printer head.

While it is desirable to work with the least sensitive stocks during special effects and optical printing work, other available filmstocks should be considered - their characteristics allowing for creative experimentation and exploration. Consider fusing different stocks, combining color reversal, color negative (printed as negative in it's orange coloring) and High Contrast black and white. Such an unusual approach may yield very exciting imagery. Equally stimulating and interesting results might be attained through experimentation with scientific stocks such as infrared material.



Filmstrip 1 ends with frame 13; in order to make an invisible splice, the new scene, located on filmstrip 5 starts with frame 14.

Filmstrip 2 fades in an image over 12 frames.

Filmstrip 3 fades in an image over 16 frames.

Filmstrip 4 fades out an image over 12 frames, at the same speed filmstrip 2 fades in, thus creating an equal dissolve.

For example, frame 12 is a four -time multiple exposure/ superimposition showing filmstrip 1 and partial exposures of filmstrips 2, 3, and 4.

Labs have standardized fade-in, fade-out lengths, usually 12, 16, 24, 32, 48, 64, and 96 frames. Check with your lab on how they want your cue sheet to look like and how to sync your material up.

Illustration 3.1: Multiple Filmstrip Editing

If you work primarily in the in-camera editing mode, whether via multiple exposure work with a Bolex, alone, or with an optical printer, upon completion of shooting, you will have a single roll of camera master/original film which has incorporated all fades and opticals. Generally, these effects are created and accomplished at a film lab through multiple roll printing. During the conforming process, the filmmaker creates at the very least an A and B roll from the camera original, which is aligned to a locked down workprint, marked for fades, supers, dissolves, etc. Films involving the complex visual structure, as discussed in this text, would require perhaps as many, or more than five rolls (A-E). (See Illustration 3.1) Working in the in-camera editing mode allows one to order release prints quite inexpensively - directly from the A-roll, frequently one-light as the timing has occurred during the shooting process. But if expense is not a factor, A-B or multiple rolling can accomplish complex and creative effects which one could not or would not wish to achieve in-camera and/or via the optical printer.

Traditionally, A-B rolling functions as the means to achieve invisible cuts and to incorporate fades and dissolves. However, you may wish to have a scene dissolve from black and white to color. A black and white print of the color original would be placed on the A roll, while the successive, identical color image would be placed on the B roll to achieve a successful dissolve. Opposite positioning would accomplish the opposite effect. Of course, rolls prepared for lab-printing may contain any material which is technically fit for printing. As in the optical printing process, you may combine a variety of stocks - color reversal, black & white reversal, color negative, black & white negative, high contrast, etc. You may incorporate tinted leader or stock which has been manually treated/designed with paint, heat, etc. It is even possible, when using double perforated stock, to print an image which has been flipped with the emulsion on the "wrong" side.

With such special printing needs, the role of the lab becomes significant. Often, the more unusual your footage and multiple roll effects are, the less willing a lab may be to accommodate you. Labs are proficient in achieving quality prints from simple, straightforward A-B roll jobs, composed of either negative or reversal materials and containing a reasonable amount of fades and dissolves. Printing color negative and reversal stock together, or a "flipped" filmstrip constitutes risk both for the lab and the client. Due to a lack of experience in such matters, the lab may advise you that certain effects cannot be accomplished, or may claim no responsibility should the printing results not meet with the filmmaker's expectations. This situation must be accepted as the lab cannot guarantee quality results when using materials or combinations of stock with which it is unfamiliar. In this instance, a good relationship with a lab and its timers must be developed. Frequently, timers have been or are independent filmmakers themselves and may enjoy the challenge and

artistry your order poses. In any event, if the filmmaker can clearly envision, articulate and edit for the effects he wishes to accomplish, the lab can realize them. The filmmaker must observe the lab's requirements with regard to their printing procedures in order to engender a good working relationship and quality printing results. Preparation of the original, the amount of head and tail leader, the technical requirements for fades and the availability of fades, cue sheet instructions - all such specifications should be discussed with the lab prior to the conforming process. The cue sheet (Illustration 3.2) lists the feet/frame numbers of every single effect (fade-in, fade-out, timing change) on every single roll. A copy should be kept for your own reference, while the original accompanies the materials which are sent to the lab.

To conclude, simple, silent release prints can be manufactured on your own optical printer. However, the lab's use of contact step-printers, specially designed for 1:1 high volume prints, provides the most efficient venue for attaining release prints. The contact step-printer guarantees the production of prints identical in size and color, according to the filmmaker's specifications. With the optical printer, such precision in image size is difficult to attain. Further, when engaged in optical printing work, the prints used must match the original perfectly, especially if a travelling matte is employed. Thus, contact step-printing is highly recommended in this instance, unless you wish to experiment with mattes which are irregularly fitted.

CUE SHEET for _____

Name: _____ Phone: _____

Footage	Effect	Length	Roll	Notes

Illustration 3.2: Cue Sheet

Chapter Four

4

The Primary Principles of Optical Printing

This chapter introduces you to the primary principle of optical printing, that is the re-photographing of an already exposed and processed filmstrip. It shows the creative possibilities available to the filmmaker with optical printing.

The most basic factor which distinguishes optical printing from traditional motion picture photography is the removal of the filmmaker from the "real world" location and its various demands - the variables of weather, the management of personnel, the blocking of each shot, etc. With the optical printer, you essentially re-photograph an already exposed and processed filmstrip; and your workspace becomes your apartment or studio. It is primarily a solitary form of filmmaking, which after the rigors of fieldwork may become an alternative practice for others, like myself, who find creativity in silence, comfort in the familiarity of a controlled workplace and greater concentration in this focused approach.

Illustration 4.1 provides a guide to the apparatus under discussion - the J-K Optical Printer Model K-104. As you can see, it is composed of a projector whose light source projects the image of a single frame of developed film through an optical system (a lens) into the camera, where the image is re-photographed. Of course, the apparatus allows one to project any type of film image for re-photographing; reversal, negative, found footage, unexposed or exposed footage which has been treated with paint or acid, film exposed in a can with a hole in the lid, scratched emulsions, blank film or leader to which objects have been applied, etc. Only you can determine the limits to such creative possibilities and opportunities.

Luckily, the unavailability of a J-K Optical Printer is not a hindrance to the filmmaker interested in engaging in this form of specialized filmwork. Because the basic system of the apparatus is so simple, you could build your own optical printer with relative ease. An old, even defunct 16mm projector (a S8mm, 8mm, or 35mm projector would naturally be appropriate if you were working with footage of any of these respective gauges) may be converted to advance film a single frame at a time. The shaft which drives the footage through the projector at a regular rate of 24 f.p.s. should either be extended for manual operation and control, or attached to a motor capable of transporting the film at the speed of a single frame. The registration must be completely accurate; the frame line must place at exactly the same position each time you advance or rewind a frame. Attaining precise registration is often the most laborious and challenging aspect of building your own printer. However, a well designed motor can alleviate the problem, as can the careful marking of each frame in the stationary position when working in the manual mode.

The converted projector, optical system and camera are all secured on a bench with tracking rails or some sort of simple mechanical device which allow for their easy movement in relation to one another. Of course, they may be manually fixed in different spatial relationships, as well. Sophisticated niceties such as rotating optical printer heads and microadjustments in all three axes of the lens carriage would allow for very elaborate optical effects. However, most of the special effects discussed in this text can be accomplished on a homemade apparatus.

Another alteration is vital - the projector's light source. The existing light source will burn the filmstrip when it is in the stationary position required for optical printing and thus must be replaced by a lamp which emits less heat. Further, filter holders must be placed between the lamp and the filmstrip, to allow for the addition of color correction and neutral density filters or any other filter material with which you wish to experiment. The filter holder should have the capacity to hold up to three color correction filters. Filters are not only used for creative purposes, but also are needed to reproduce and preserve the projected filmstrip's original color. The placement of these filters does not effect the sharpness of the image. Additionally, a filter holder may be inserted between the projector gate and the lens for the purpose of image manipulation. Filters used in this area will alter the image quality, causing a multitude of effects such as distortions, spectral beams, starpoles, etc.

With the appropriate alterations and additions, the projector is ready to beam light directly through the entire system - the filter set, the filmstrip which rests in the projector gate, the lens/optical system, the camera - finally to be received by the unexposed footage positioned in the camera gate. Thus, we turn to the other elements of the apparatus - the

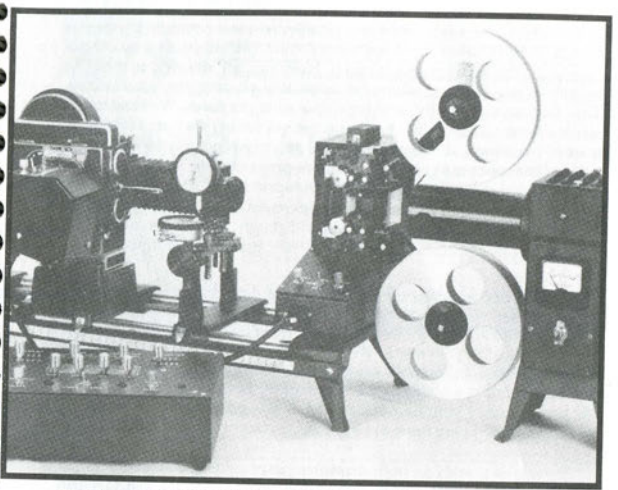


Illustration 4.1: J-K Optical Printer Model K-104

lens/optical system and the camera. The lens employed for your optical printer does not have to be specifically designed to fit the camera body, for it is never directly attached to the camera. A carefully secured bellow serves as the means of connection and successfully prohibits light leakage at the camera gate. If you use a Bolex reflex camera, or any other camera with a reflex viewing system, you will be able to assess the character, size and sharpness of the projected image. By altering and experimenting with the spatial relationship between the three elements of the optical printer (projector, lens, camera), you will be able to manipulate the size of the image through enlargement or reduction. You possess the ability to enlarge small, selected fragments of the image as well as to reduce the image to such an extent that a split-screen effect may be achieved with the assistance of a prefabricated mask. In other words, you can create an image which itself contains several images placed beside one another like building blocks or atop one another in the pattern of a Cartesian grid. Again, because this effect entails the use and manipulation of a mask or matte, you will be unable to directly view the composite image prior to the processing stage. In this instance storyboarding is highly recommended. Your ability to manipulate the size of the image will be dependent upon the spatial range which you have created on the optical printer bench to allow for the movement of each element.

Single-frame operation is generally the most common method of optical printing, especially if one wishes to achieve effects similar to those viewed in the accompanying video. However, an alternative mode of operation, step-printing, allows for automated printing in a pre-set mode. This method is generally used for duplication purposes. Working in the single-frame mode with the converted projector/printer, I similarly operate the camera at a controlled frame rate, exposing very few frames at a time. It has been my experience that pre-programmed, computer driven patterns are insufficient for my needs. Step-printing in 1:2 or 2:1 ratios (the left digit refers to the number of frames exposed in camera; the right digit to the number of frames which pass through the printer during an exposure) was a process rarely used in the creation of my films.

Both the camera and printer require specially designed motors which must operate in a variety of modes: forward, reverse, single-frame and continuous. Should you desire to manufacture silent release prints through the step-printing process, the required 1:1 ratio can only be achieved through the synchronization of these motors. For that matter, any step-printing job will require such synchronization. Remember that the production of your own release prints will be quite time consuming, specifically if you are reproducing a large volume of material.

Working with an optical printer poses several challenges to the filmmaker. The progress of the special effects work which will be detailed in this text and in the accompanying video is especially slow and time consuming. And although all filmmakers must "sweat it out" as they await the return of their processed footage from the lab, the artist working with the optical printer is often completely unable to predict with accuracy the "look" of his/her previsualized effects. Frequently, I have been surprised by the outcome of my efforts. Moving in unchartered territory, you, too, must accept both the fortuitous and disastrous results with equanimity. Only increased experience will lessen the risk of disappointment. The unknown factor in such a form of filmmaking, however, must not be discounted as a purely negative element. Often, the beauty of your material will be startling, exciting and extremely rewarding. Assuredly, a great deal of patience is required, for technical problems arise with frequency. Further, effects which take perhaps an entire day to accomplish will last for only 24 frames/1 second of projected time. Yet, despite these obstacles, you are engaging in a type of filmmaking which will elicit films of distinction and uniqueness. Just as each person possesses an individual style of handwriting, each artist possesses a vision, a method of thinking, creating and working which is completely his/her own. In the realm of this special form of filmmaking, the artist's personality is clear and visible with the projection of his/her work upon the screen. For myself, this element of revelation, whether I am in the role of filmmaker or viewer, is perhaps the most fulfilling.

Chapter Five

5

The J-K Optical Printer

This chapter exemplifies the basic optical printing operation procedures on the K-series optical printer from J-K Camera Engineering. You see how optical zooms, pans, image enlargements and reductions, split screen effects, as well as format and cropping changes are performed. In addition you understand the more sophisticated, multiple exposure runs and creative applications of the wide field of "filmic language" as examined in previous chapters.

The J-K Camera Engineering Inc., K-series optical printer (K-60, K-103, K-104) is the most popular model of optical printer available, and is commonly used in film departments and art institutes, universities and colleges. I have worked exclusively with the J-K throughout my career and, therefore, will confine this chapter to a thorough discussion of its operation and various capabilities. However, should you work with an optical printer from another manufacturer, you will discover that the basic procedures for operation remain the same despite brand or model differences.

The standard optical printer provides the filmmaker with a wide variety of creative options, possessing the ability to engender optical zooms, pans, image enlargements and reductions, split screen effects, as well as format and cropping changes. To enable enlargements or reductions of the projected image, the printer may be altered in terms of format through interchangeable fixed pin registration modules and printing gates (S8mm, 16mm, 35mm), whereas any camera (8mm, S8mm, 16mm, 35mm) may be mounted opposite the printer to achieve the desired effect. For example, S8mm film may be threaded through the adjusted printer and projected through the lens to be received by a 35mm camera for an enlargement. Similarly, 35mm film may be threaded through the adjusted printer and projected through the lens to be received by a 8mm camera for reduction. Remember that all enlargement and reduction work effects the quality of the image, the grain structure, etc.

The aspect ratio of the picture frame should always be considered when designing an enlargement or reduction, or, for that matter, when shooting any film which may be subsequently transferred to video format for either broadcasting or the home video market. The aspect ratio of a standard 16mm and 35mm frame is 1.33 : 1. However, 35mm prints are projected at a 1.85 : 1 aspect ratio in the United States and at 1.66 : 1 in Europe. On television, the picture is broadcast at a 1.33 : 1 aspect ratio. Thus, when 35mm film is televised 25% of the image is lost, as the top and bottom portions of the frame are equally cropped.

As indicated in Illustration 5.1, the standard K-103 optical printer is equipped with a base and 22 inch ground tracking rails on which the projector unit, lens carriage and camera are mounted. The projector unit is furnished with an integral synchronous motor with a 400 foot capacity power take-up, a 35mm slide mount and filter holder, a five digit frame counter with reset control and a 16mm fixed pin registration module which can be exchanged with a S8mm registration module.

The film original is transported and registered with the movement of a close tolerance, highly evolved, fixed pin registration. In order to obtain the correct positioning of the projected image in the camera viewfinder, the projector original is wound from the bottom and side-switched through the registration system and printer gate to the take-up reel. The light source provided and recommended by the manufacturer is a quartz halogen lamp house with a 300 Watt ELH lamp for high intensity projection. The lamp is blower cooled, possesses variable voltage control and a voltmeter. (I replaced this light source with a 20 Watt halogen bellaphot system in order to gain a brighter viewfinder image and to work with a greater lens aperture.)

The EL-Nikkon 50mm F:4 lens is also provided as a standard component of the K-103; however, alternative lens mounts may be accommodated to fit the optical printer. The lens carriage is equipped with dial indicators for microadjustments to provide accurate lens positioning in all three axes: the x-axis or East-West axis which is horizontal and runs perpendicular to the z-axis; the y-axis or North-South axis which is vertical and also runs perpendicular to the z-axis; the z-axis which runs parallel to the optical axis and determines image magnification/reduction and effects focus. The K-103 lens bellow allows for image magnification and reduction, achieved by the relative ratio created from the lens to camera distance versus the projector position. Ratios of 1:4 through 4:1 are attainable. Both the lens and camera are tracked with lead screw, microadjustment hand wheels which are postioned on the left end side next to the camera.

The Bolex camera is generally operated by the K-204 printing motor, which is especially designed for use with the Bolex R-4 and R-5 and

Illustration 5.1: The J-K Optical Printer

mounts directly on the camera body. The printing motor drives the Bolex through the camera's external 1:1 drive shaft and is capable of achieving synchronization with the projector motor at 50 frames per minute in both continuous forward and reverse operating modes. With this application, exposure time is 0.6 seconds. Additionally, it allows for single frame exposure in both forward and reverse. For faster printing needs, the printing motor model P200R is recommended, operating at 200 frames per minute. In conjunction with the electronic sequence control, the P200R will synchronize with the K-103 printer and run at 60 frames per minute with a 0.1 second exposure time.

The electronic sequence control enables the camera and projector motors to run in a preselected pattern. Sequences may be selected to repeat and/or eliminate original frames in groups of one to ten. For example, the sequence control can be programmed to adjust a 16 f.p.s. or 18 f.p.s. original for a 24 f.p.s. duplication.

If your J-K optical printer houses an older Bolex non-reflex model, Bolex can provide an optional rackover reflex viewfinder which displays the full 16mm image precisely framed with a field reference chart. The field reference chart assists you in achieving exact image positioning through twelve field markings within the cross hair, camera, projector gate, television safety and title areas. This is a useful device in that the standard Bolex viewfinder does not allow you to achieve the caliber of focus required in quality optical printing work. However, if a chart is unavailable, the most beneficial procedure in attaining a precise image involves running the projector in the continuous mode while focusing through the Bolex viewfinder. Further, an optional 90 degree prism, which may be placed on the camera shaft with the removal of the pressure pad, displays the image to be photographed as it appears on the film plane. Again, this additional tool ensures a correctly focused image, but is only recommended when the film project entails a substantial amount of shooting with infrequent changes in image size and focus as the prism is used prior to loading the camera. For J-K accessories please see the Technical Appendix A.

While the optical printer is designed for bi-pack operation, an essential function when the filmmaker utilizes traveling mattes, the J-K's performance in such situations is often problematic. Films are bi-packed by simultaneously threading the two filmstrips which are to be in contact with one another and projected concurrently through the printing module. However, in my own experience, the image alignment has been less than perfect, thus creating mattes which do not fit 100%.

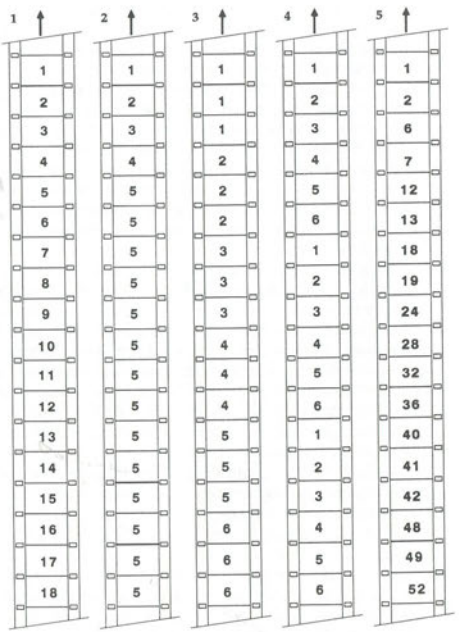
The optical printer is a magical tool endowing the filmmaker with complete control over every single frame of his/her film. Within the traditional realms of fieldwork and editing, the filmmaker envisions

sequences of frames, a shot or scene. Now, you can isolate a particular image and explore the ways in which it functions both as a photographic unit to be visually manipulated through successive photographing, i.e. enlargement, reduction, superimposition, and as a communicative device in terms of editing. What is the communicative impact of the single frame in the work of such artists as Kubelka or Brakhage? Filmmakers working with the optical printer will begin to examine the medium from this unusual vantage. Further, the entire process involves an alternative approach to filmwork. Suddenly, you are independent from the constraints of the on-location shoot, and yet you must discipline yourself to determine a shooting schedule which involves your own determination, perseverance and creativity as self-engendered qualities, rather than as determined by the expectations and pressures of an outside producer, crew, actors, etc.

In exploring the single frame as the fundamental filmmaking unit or cell, you may extend the time in which a single image dominates the screen through its isolation and reproduction. The possibility of isolating each single frame not only allows for the execution of the freeze frame effect, but also enables you to manipulate the space within the original frame itself. Portions of the original frame may be enlarged to create independent imagery for photographing, whereas single frames of the original may be reduced to such an extent, and subsequently photographed with the assistance of mattes, as to achieve their placement within a single frame in a building block pattern. You may also elongate the passage of a particular sequence of frames through reproduction at a rate of over 24 f.p.s.. Conversely, re-photographing original footage at a speed below 24 f.p.s. would elicit a fast motion effect. (See Illustration 5.2)

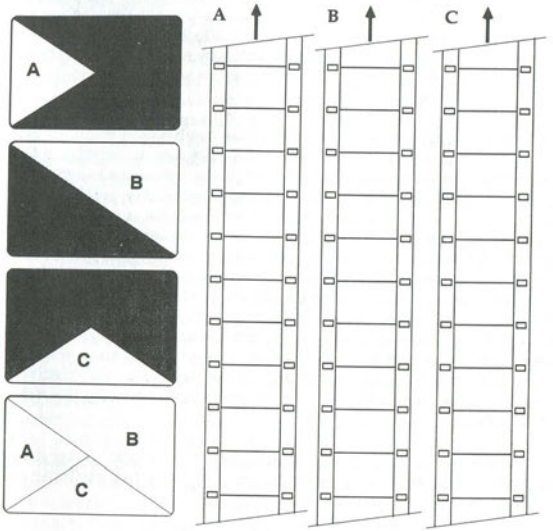
Image enlargement not only enables you to explore and manipulate the contents of a frame creatively, but also allows you to overcome and correct specific technical problems. For example, a visible boom shadow or microphone may be cropped out of frame, or the grain structure may be emphasized to enhance the mood of a sequence. As suggested earlier, image reduction enables you to reproduce the entire original filmstrip including its perforations. Additional matte work would allow you to achieve a split screen effect with two or three reduced, re-photographed filmstrips running simultaneously on one filmstrip. (See Illustration 5.3) This not only achieves a startling and stimulating visual presence, but further creates new narrative possibilities as two contents, perhaps related or disparate, are being revealed at once.

Optical printing allows the filmmaker to alter the character of each frame, of each image. You may manipulate and change the color of the projected original through the use of filters. You may alter the density, emphasize the grain structure. As discussed earlier, traveling mattes provide further options. This unique opportunity to precisely determine



Filmstrip 1 shows the cameramaster of 18 continuous frames.
Filmstrip 2 has a freeze frame at frame 5.
Filmstrip 3 shows a 3:1 extension; the camera exposes three frames for each single cameramaster frame in the printerhead, thus slowing down the movement.
Filmstrip 4 shows exact repetition of movement from frame 1 through frame 6; this scene of the cameramaster gets repeated three times.
Filmstrip 5 skips frames and prints only single frames, resulting in a speeding-up of the movement of the master.

Illustration 5.2: Various Effects with the Optical Printer



The principle of split-screen printing in this case shows three different films A, B, and C running at the same time on one image. While film A gets partially exposed, areas B and C remain blocked off by a matte designed for this purpose. While film B gets partially exposed (after rewinding the camera) areas A and C are blocked. While film C gets partially exposed (after rewinding the camera) areas A and B are blocked off. For more conventional split-screen prefabricated mattes are available.

Illustration 5.3: Split-Screen Printing

the look of each frame allows the filmmaker to "weave" a film of unusual formal and visual principles. Plain, commonplace imagery is transformed, invested with mystery and beauty. However, the realization of the many possibilities offered not only depends upon the creative talents of the filmmaker, but also more practically upon the use of the Bolex or another camera with equivalent features in conjunction with the printer.

When learning how to operate your J-K optical printer and exploring the apparatus' many features, it is advisable to run a series of basic tests before actually printing any storyboarded footage. These tests will serve as a guide for decisions regarding exposure and color control. It is also necessary to experiment in this fashion when you have replaced the optical printer's original light source.

In order to determine the color filter combination required to faithfully reproduce the projected original with regard to variables in f-stop and ND densities, either select a test original which serves as a model for the footage which you will be reproducing or, preferably, use the color charts supplied by numerous film labs throughout the country. These charts are perhaps the most neutral test material available, containing a series of color gradations, a scale of gray variations ranging from black to white and a flesh-tone sample. You may purchase a standard set of color correction filters to execute these tests, comprised of 0.025, 0.05, 0.10, 0.20, 0.30, 0.40, and 0.50 filters in both cyan and magenta. Cyan is a greenish blue color and the complementary of red. Consequently, magenta, a purplish red color, is the opposing color to green on the color wheel. When producing sample exposures to determine the necessary correction factor, load your Bolex with the filmstock which you plan to use in your subsequent project.

A typical test series for reversal film (in this instance, using the Nikkon 50mm F:4 lens) should be conducted and charted in the following manner:

C025 M025 f-stop 22 through 4
C05 M025 f-stop 22 through 4
C10 M025 f-stop 22 through 4
C15 M025 f-stop 22 through 4
C20 M025 f-stop 22 through 4
C25 M025 f-stop 22 through 4
C30 M025 f-stop 22 through 4
C35 M025 f-stop 22 through 4
C40 M025 f-stop 22 through 4
C45 M025 f-stop 22 through 4
C50 M025 f-stop 22 through 4
C55 M025 f-stop 22 through 4
C60 M025 f-stop 22 through 4
C65 M025 f-stop 22 through 4
C70 M025 f-stop 22 through 4
C75 M025 f-stop 22 through 4
C80 M025 f-stop 22 through 4
C85 M025 f-stop 22 through 4
C90 M025 f-stop 22 through 4

Of course, the process is repeated again combining the various cyan filters with each magenta filter at the full range of available f-stops. All of the combinations must be exhausted, thus it is necessary to test for each lens aperture, to observe the effects of ND use when your project will entail a bright light source or involve high speed film. Though this process seems tedious and is certainly time consuming, I strongly recommend this form of experimentation as an alternative and effective means of becoming familiar with the operation of the optical printer. It will provide an overview of filter combinations and supply useful samples of color and density alterations as a result of filter use. However, for practical purposes, a filter combination of C40-C80 and M30-M70 generally elicits the proper color balance.

Construct your test reel in such a manner as to be able to visually identify each filter combination with your written account. I separate each filter change with black frames, achieved by completely closing the variable shutter between each exposure. The roll correspondent to the chart outlined above would be constructed in the following fashion: a) exposure of run C025 M025 f-stop 4 through 22, b) one black frame, c) exposure of run C05 M025 f-stop 4 through 22, d) two black frames, e) exposure of run C10 M025 f-stop 4 through 22, f) three black frames... continuing until you create a new filter combination, perhaps using M05 as your new constant. Separate this new factor from the previous sequence by exposing the first few frames of the run with your thumb or lens cap partially blocking the lens. Remember that a written record is indispensable in this process and will facilitate the evaluation of your results. (See Illustration 5.4 for a model test sheet.)

Similarly, during special effects work, it becomes imperative to log every step of the process as well as any changes which occur during operation. The type of filmstock used, the f-stop, filter combination, printing mode (forward/reverse, continuous, single frame with camera/projector distance ratio denoted), duration of opticals (fade-in, fade-out, dissolve), character of source material (color/B&W, negative/reversal), ND filters used, special effects (filters, side-switched material, etc.), camera frame # (from - to), projector frame # (from - to) are necessary categories.

Camera or projector jams, an inoperable fuse, etc, all unexpected occurrences should also be duly noted. Additionally, you should leave room for personal remarks concerning the time involved in achieving specific effects or notes regarding your previsualization of a particular sequence. Such thorough record keeping allows you to return to problem areas and evaluate accidents with greater accuracy.

As described earlier, the film should be marked and synchronized to the camera's feet/frame counters when loaded into the camera. If your

counters have been zeroed out, advance to frame #200 in order to allow any accidentally exposed footage during the loading process to travel to the take-up reel. The last frame to be exposed during the shooting process should not exceed #4,100 on a 100 foot roll, thus providing a tail which acts as a safety margin against accidental exposure when the film is unloaded.

Printing operations are not always trouble free. Depending upon the condition of the camera within the apparatus, jamming is an all to frequent occurrence when permanent, short-range, forward-reverse operations are used. Jamming may result in broken or bent film, destroyed perforations and at times may completely destroy your footage. Generally, a change or irregularity in the camera's transport noise will indicate an operational problem. If you are unsure about your camera's efficiency in specific modes, with particular regard to short-range, forward-reverse exposure, do not expose runs exceeding 50 feet in length. When a jam occurs, move the camera to a darkroom or place it under a blanket when such a facility is unavailable. Rewind the jammed film with attention to the camera gate, cut the footage at the point of damage and discard, save and store the footage which previously travelled to the take-up reel safely, place an empty take-up reel in the camera body, re-thread the remaining footage and resume your work. As an additional means to minimize camera jams, J-K Camera Engineering supplies an optionally modified Bolex 400 foot magazine outfitted with a take-up motor which replaces the Bolex' original spindles with new ones now fashioned with take-up pulleys which are designed for J-K motors.

In high-precision, forward-reverse dissolve work, you must account for a small limitation with regard to the Bolex. As the camera requires the passage of one frame before securing exact frame line positioning, the first frame of exposure must be treated as a start-up frame. Thus, if the rewind for a matching dissolve requires a 12 frame fade, the actual rewind must be 13 frames long. The first frame is unusable and the second frame acts as the actual beginning of the fade. If you do not account for this problem with the initial frame of exposure, a visible jump will occur in your effect with its passage.

During precision fade-ins, fade-outs and dissolves a great amount of frame counting is required. The frame counters on both the Bolex and the projector cannot substitute for your own record keeping with regard to exposure lengths, specifically in the case of short range opticals ranging from 2 to 50 frames in duration. As stated above, rewinds for both fades and dissolves must account for the Bolex start-up frame. The Bolex itself assists you in maintaining an accurate count with regard to rewinds, as the camera clicks with the transport of each frame. Do not confuse this mechanical sound with the aural cue provided by the camera during normal operation with the passage of every 24 frames. As you will discover, in practice, an unimaginable amount of time is consumed while

determining and counting frame transports, irrespective of the selected operating mode. In optical printing work, the filmmaker must divorce himself/herself from the viewfinder in order to maintain frame accuracy. Initial image alignment and focusing are the only fundamental aspects of the process which require the filmmaker's use of the eyepiece.

Final tips... It is advisable to pre-select the images and sequences to be printed on an editing table, rather than through their projection in the optical printer. As in any film production, the thoroughness of the preplanning has a decisive impact upon the smoothness of the filming itself. Carefully map out the optical printing operations required and your margin for error will certainly decrease. Of course, I do not mean to discourage the idea of spontaneity and experimentation - a fundamental aspect of many filmmakers' work. However, careful records of such work will allow you to evaluate and reproduce those experiments which bear the most fruitful results.

Worksheet for Optical Printing Operations							
Printerhead			Camera				
Frame Number	Stock	Shot	Fade-in Number	Straight Exposure Number	Fade-out Number	Frame Numbers	Special Remarks (filters, a.s.o.)

Illustration 5.4: Model Test Sheet

Chapter Six

6

Illustrative Examples

A Visual Guide of Model Works in Special Effects

This chapter corresponds directly to the video cassette. It explains and demonstrates in and step-by-step detail the technical requirements and procedures necessary to achieve the images on the video cassette.

The following catalog of filmworks corresponds directly to the works which appear and are discussed in the video cassette accompanying this text, *The Experimental Films of Bastian Clevé*. The tape supplies a visual concretization of those effects which we have discussed throughout this book. Clips from several of my short films and the feature length *San Francisco Zephyr* will provide you with examples of image reduction, multiple supers, etc. I include this chapter to further explain and demonstrate in detail the technical requirements and procedures necessary to achieve the images within these films. Additionally, exposure to this alternative form of filmmaking will hopefully elicit a spectrum of new ideas, introduce unexplored creative possibilities, expand your filmmaking vocabulary, as well as explicate my own aesthetic and theoretical goals with greater precision.

As with most of my films, I begin with the Bolex, shooting in nature while attending to the idea that I will rework this footage during the second phase of the creative process which occurs with the optical printer. The planning and execution of the original shoot, of course, is greatly influenced by this premise. One responds differently to his/her environment, to the collection of images which accumulate as the shooting continues, as the possibilities are endless. The optical printer enlarges the dramatic and creative scope of the work.

This catalog is an illustrative guide and is furnished to assist you in the previsualization and actualization of specific effects. The techniques described certainly allow for variations and alterations, according to each filmmaker's personal aesthetic design and desire. All films displayed in this video, if printed, were printed on the J-K K-103 Optical Printer. This chapter takes the form of a working diary.

Title: **Echo, 16mm, color, 11 min.**

Filmstock: 16mm double-perforated Ektachrome Video News Film VNF 7240, 100 ft. camera spool, ASA 80
Filter: Wratten 85B
Camera: Bolex H16 SBM
Lens: Kern Switar 10mm, f1.6
Filming speed: 12 f.p.s.

Objective: To create a cosmos or universe of color and abstract movement, to create patterns and images which remain divorced from reality, to develop an accompanying soundtrack which at times underscores the content of a visual passage and then develops moments of tension and complete rupture through loss of synchronization or a sudden absence. In this film, I wish to create a purely filmic reality.

Process: Initially, I engage in a great amount of handheld work. The camera moves from inside an apartment to outside into a backyard garden. There, I hold the Bolex in my outstretched arms shaking and whirling it around as quickly as possible. I vary and interchange these movements of blurred color with more controlled, quieter passages. The camera travels through open, brightly lit areas and directly passes into shaded places where trees dominate the scenery. Setting the Bolex at 12 f.p.s. ensures a lack of focus, an obscuring of the real, concrete image which is being photographed. Further, the camera speed enhances the diversity of each frame.

I attempt to create special passages, unique in their mystery and painterly quality. I rework the now developed footage, which I photographed outdoors, on the optical printer. I shoot at various ratios - 2:1, 3:1 and 4:1 (thus 2, 3 or 4 camera frames reproduce a single printer frame, respectively) to extend and slow the passage of the original footage.

In using the Bolex with the optical printer, I again use VNF 7240, double-perf, at ASA 125. I use a 100' roll.

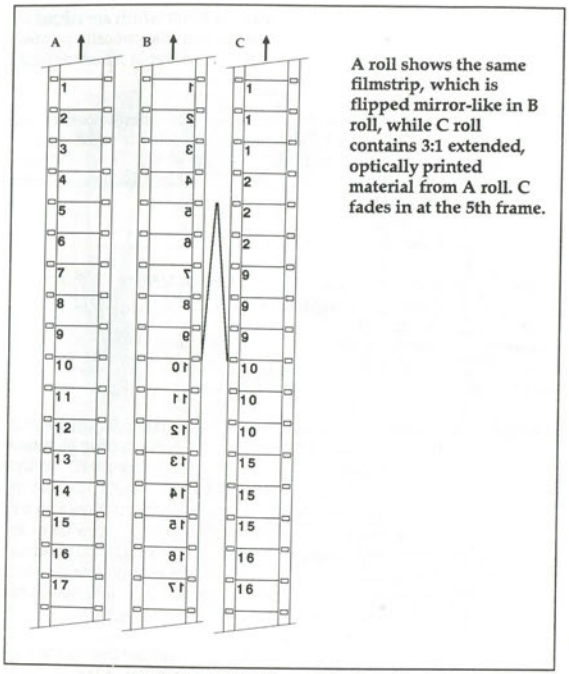


Illustration 6.1: Mirror Effect and Fade-in

I edit the location camera master and the optically printed camera master together to obtain a 10 minute film. This edited material is sent to the lab and the footage is printed as a double-perf, untimed workprint (due to the look of the footage, timing the workprint is virtually impossible). A-B-C roll editing follows. The edited original of the camera master and the optically printed camera master becomes the A roll. The B roll is comprised of sections of the lab produced workprint of the A roll. These portions are edited to create a visual echo of the A roll material. Sequences may lead or trail passages in the A roll. Additionally, mirror effects are created by flipping

correspondent passages in the B roll which are edited in sync with the A roll. Material from the optically printed camera master becomes the C roll. I edit in the soundtrack simultaneously. See Illustration 6.1.

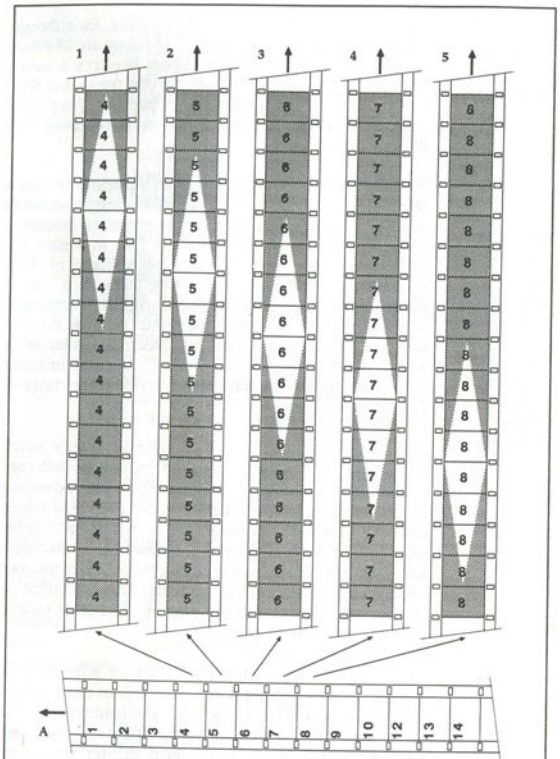
The A-B-C rolls are linked through continuous fade-ins and fade-outs resulting in double and triple exposures/superimpositions. These effects are scripted on a cue sheet for the lab, which strikes the final answer-optical sound print.

Title: **Kaskaden, 16mm, color, 11 min.**

Filmstock: Eastman Ektachrome Commercial 7252, double perforated, ASA 16
Filter: Wratten 85
Camera: Bolex H16 RX-5
Lens: Kern Vario Switar 12.5 - 100 mm, f2
Filming speed: 18 f.p.s.

Objective: To take pictures from reality, for instance the image of a tree, and to then manipulate these recognizable pictures. Rapidly transforming images into purely filmic reality, exploring the hidden "other" worlds which pre-exist in the easily observable, I would like the audience to be introduced to an unseen world which inspires them to perceive the ordinary and normal in a different manner. The accompanying soundtrack will enhance the musical qualities in this visual composition. Sync and non-sync tactics will be used.

Process: A handheld shot of a tree becomes a shaky pan up the full length of the trunk extending to the sunlit leaves. This particular image contains great contrast in terms of the darkness of the tree bark, which gives way to the bright treetop backed by a visible sky. The length of this building block shot is 1350 frames, equivalent to 56 seconds of screen time. I reprint this footage collected on location on the optical printer with double-perf ECO 7252. I generally alternate between 4 to 7 exposure runs, as the number of exposures is in part determined by the length of the fade-ins/fade-outs which I desire to implement. These fade-ins/fade-outs correspond to the printing ratio I establish between the camera frame count to printer frame count. In the case of a 24:1 ratio for example, I wish to expose 24 camera frames for each single printer frame. I accomplish this by fading in 12 frames and fading out 12 frames on one printer image. To create provocative



The principle of "stack printing": A shows the cameramaster in the printerhead. 1, 2, 3, 4, and 5 show five exposure runs/ super-impositions on the *same* filmstrip. Frame 4 gets extended by a 4–frame fade-in, 4-frame fade-out; after rewinding the camera frame 5 gets, 2 frames later than on exposure run 1, extended by a 4-frame fade-in, 4-frame fade-out; and so on....

Illustration 6.2: Stack Printing

superimpositions, I then rewind 19 frames, for although the effect I wish to create only requires an 18-frame rewind, I remember that the Bolex requires a safety frame. I forward the optical printer one frame and then repeat the entire process for the set number of exposure runs, in this case a triple exposure is required. See Illustration 6.2.

Stacking fade-ins/fade-outs in such a manner creates a complex construction of supers which seem to weave in and out of one another. The triple exposure discussed above elicits a passage within the film in which the highlighted tree leaves become pointillistic in their appearance and the erratic panning takes on a lyrical, almost liquid character. The camera original interestingly maintains the frame order of the printer original. But, the consecutive frames have been altered both in terms of screen duration and of the layered structure initiated with the fade-ins/fade-outs which serve as the constant or tonic of each passage.

Again, the camera frame to printer frame ratio determines the length of the fade-in/fade-out which may be executed in two ways. For example, a 48:1 extension would require a 24-frame fade-in followed by a 24-frame fade-out, or could be accomplished with a 20-frame fade-in, a full exposure of 8 frames, followed by a 20-frame fade-out. The possibilities when working in this manner are endless; and stacking, in particular, draws attention to the material character of the medium. Densities visibly change before the viewer.

Simple extensions of a 6:1 or 8:1 ratio are achieved in a similar fashion and approximate dissolves due to their brevity. A multiply exposed 8:1 extension would be constructed from a 4-frame fade-in/fade-out, followed by a 4-frame rewind. The optical printer would be advanced one frame and the process would be repeated for the desired exposure run.

True dissolves may be achieved when re-photographing a single printer frame without recourse to the extension/stacking method discussed above. This tactic results in a smoother image, although the duration of the effect is often ephemeral, often so subtle as to be barely

visible. For example, a 3-frame dissolve only possesses an 1/8 of a second of screen time; yet, the impression created is one of quietude and lucidity and is quite effective in translating the beauty of transformation. When initiating a dissolve, remember that the exposure time is equivalent to the f-stop for a single exposure.

I reprint the developed, optically printed footage, changing filters and experimenting further with printing modes. The resultant footage is reddish in quality.

I edit the optically printed footage into a 10 minute fine cut, order a one-light workprint from the lab to be processed on double-perf stock. The workprint becomes my A roll in the conforming process. The reprinted footage with filter changes, etc. is sent to the lab intact and contact printed to give me two duplicate filmstrips for my B and C rolls. During the conforming process, I side-switch material to achieve mirror-like effects, symmetrical patterns and movements. All three rolls are built to effect a finished print which will possess multiple images connected by fades and dissolves. I forward a detailed effects log to the lab with the conformed rolls. Also, sound editing occurs during this phase of the filmmaking process.

Title: **Zenith, 16 mm, color, 11 min.**

Filmstock: Ektachrome Commercial 7252, double perforated, ASA 25
Camera: Bolex H16 SBM
Lens: Kern Switar 10mm, f1.6
Filming speed: single frame

Objective: To create a purely filmic reality by using the basic materials of the filmic medium - the perforated celluloid strip, the frame. To both foreground and celebrate the magic of motion pictures - the illusion of movement endowed still images which are in reality rapidly projected. Further, to compose a "musical" visual structure possessing varying rhythms, tensions and points of lyricism. The work will be designed as a silent film.

Process: The original footage will consist of five rolls of the camera original shot for *Echo*. I edit this material down to two rolls which is equivalent to approximately five minutes of

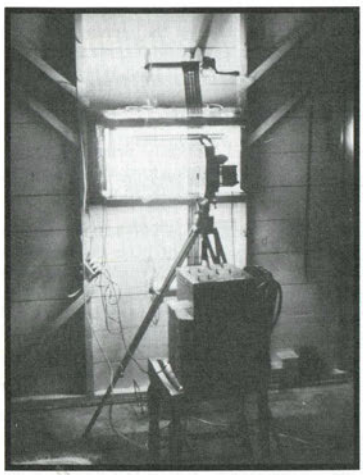


Illustration 6.3: Photo of Backlit Frosted Glass Accessory

footage. I order five, double perforated, one-light workprints of the edited version from a film lab.

I design and build an instrument as shown in Illustration 6.3, which allows me to transport six filmstrips beside one another in a single frame mode. The rolls are placed on a frosted glass plate and backlit. In creating my own hardware to achieve the design of the film, I must be careful to construct equipment which will not scratch the filmstrips, which will remain dust free and significantly transport the rolls in synchronization from bottom to top. The backlighting is provided by three 250 Watt lamps/3200K. The mechanism which I devise is hand operated and moves the film upward. I make visible sync marks as an added safety guard. The filmstrips are kept in place by holding bars located at the bottom and top of the mechanism. Take-up reels of the same diameter are located at the top of the device. I provide each filmstrip with head leaders of an identical length to prevent an uneven take-up speed. The filmstrips must be transported at the same rate to achieve and maintain synchronization.

I place the Bolex in front of the apparatus. It is positioned directly in front of the glass plate upon which the filmstrips rest. I operate the Bolex in the single frame mode. The filmstrips are similarly transported in sync, frame by frame. Using Ektachrome Commercial 7252, I photograph the row of single, stationary filmstrip frames at a 2:1 ratio - that is two camera original exposures of each row. During the shooting process, I change the

arrangement of the filmstrips as they rest on the glass for visual variety. I A-B roll the camera original (ECO 7252). In creating a final edit, I avoid hard cuts and splices by implementing few dissolves between the four rolls of original which were produced during the shooting process. As a matter of good practice, I create a detailed effects sheet and shot log for the lab.

Title: **Empor (Upward), 16mm, color , 11 min.**

Filmstock: Kodak Ektachrome Commercial 7252, ASA 25, double perforated, ASA 16
Filter: Wratten 85
Camera: Bolex H16 SBM
Lens: Kern Vario Switar 100PTL, 12.5 - 100mm, f2
Filming speed: 24 f.p.s.

Objective: To demonstrate the physical power of film, specifically by creating visual compositions which function as musical structures. I wish to draw attention to the materials of the medium. The film image becomes apparent as an independent unit moving upward continuously, changing subtly and/or dramatically with the passage of each successive frame. As a conclusion, the film image apparently becomes static, whereas now the viewer responds by investing the screen, the seats of the movie theater, the viewing room itself with the sensation of movement. The rhythm established by the filmic text has become this powerful.

Process: I shoot the skyline of New York City during the golden hour, capturing the waning sun as it leaves traces of brilliant color across the sky. I set a Bolex with an electric motor on a tripod to achieve long (approximately 20–second) fade-ins and fade-outs.

I optically print the processed footage on double perforated, ECO 7252 at ASA 25. The location original runs through the printer in the forward-continuous/non-sync mode, thus bypassing its stoppage at the printer gate. I change filter combinations frequently throughout the shoot. Tints will vary from blue to red to brown.

The printer motor for the Bolex is exchanged for a standard, model motor which runs at speeds ranging from 12 - 64 f.p.s. The Bolex exposes the upward running image in the printerhead under a variety of conditions,

with modifications in filming modes, film speeds, filters, exposure runs, effects desired, etc. For example, exposure passes range from 1 to 9 and are bridged by fade-ins, fade-outs and dissolves, as well as by the effects already present in the location original. Film speeds used in creating this piece exploit the full capability of the camera. The appropriate exposure adjustments are made.

With regard to the multiple exposure work, each successive exposure, after proper rewinding, runs in a slightly different size-mode than that of the previous run. To achieve this effect, I first move the lens and camera toward one another and then, as a unit, closer to the printerhead. In this manner, I implement both image enlargements and reductions. Re-photographing an image in various size-modes achieves a tunnel effect - a singular image seems to grow in and out of itself, to both expand and collapse. With a 9 time exposure pass, I set my f-stop at the proper setting for a 4 time exposure pass due to the frequency of dissolves and fades, present in the original and newly implemented in the optically printed footage.

Toward the completion of the work, I gradually reduce the number of exposure runs until I remain at a single exposure pass. At the same time, I adjust the f-stop accordingly, by opening up at proper increments. At this juncture, I abruptly turn off the continuous forward mode on the printer. The camera, however, continues to record the shocking reversal and change. Through the optical printing process, I expose four 100' rolls. Each camera roll has begun with a fade-in from black and has closed with a fade-out to black. This allows me to simply splice the rolls together as a singular A roll from which a release print may be struck.

Title: **Götterdämmerung (Dawning of the Gods), 16mm, color, 11 min.**

Filmstock: Eastman Color Negative Film 5247, 400' roll, ASA 125
Camera: Arriflex 16 BL
Lens: Angenieux 10x12C, 12-120mm, f2
Filming Speed: 25 f.p.s.

Objective: To create a visual celebration of sensuality, freedom and movement. The musical soundtrack will both enhance

and dramatize the visual structure, so that eventually the relationship between picture and sound should develop interactively. In other words, they will serve as translations for another. To create images which flow in and out from one another through in-camera editing techniques.

Process: A model dances in front of a black backdrop in a studio-like setting. (See Illustration 6.4) The scene is lit artificially and the lighting design changed with each of the nine exposure runs I execute in this shoot. With light, I create the moving silhouettes which will dominate the superimposed imagery. Further, this approach in and of itself allows for successful multiple exposure work as the black backdrop, left void, accepts additional exposure without losing its density.

I mount the camera on a fixed tripod which is never panned, tilted or moved. Each exposure run begins with an audio cue/sync mark provided by the soundtrack just prior to the beginning of musical accompaniment. Thus, the model engages in a live performance as the audio track is audible during the shoot. The rhythm and structure of the musical selection determine the use of fade-ins/fade-outs, as well as the alteration of in-focus and indistinct imagery. Focal lengths range from 10mm to 120mm.

The camera operates electrically. Each 400' exposure run is continuous and lasts approximately ten minutes. Upon completion of an exposure run, the camera magazine is removed from the camera and taken to the darkroom for rewinding. I rewind the load slowly to avoid static build-up which could lead to flashes on the negative footage. I carefully reload the magazine and camera. A hole-punched film frame acts as my sync mark. This frame is positioned in the camera gate before each exposure, thus ensuring a synchronized series of superimpositions.

The black backdrop, despite the nine successive exposures, contains frequent fades and only requires a regular four-time exposure setting. As previously suggested, the changes in the lighting design prevent overexposure of a particular segment of the picture frame. Further, the subject - the dancing model followed by her silhouette, which extends fluidly from her moving

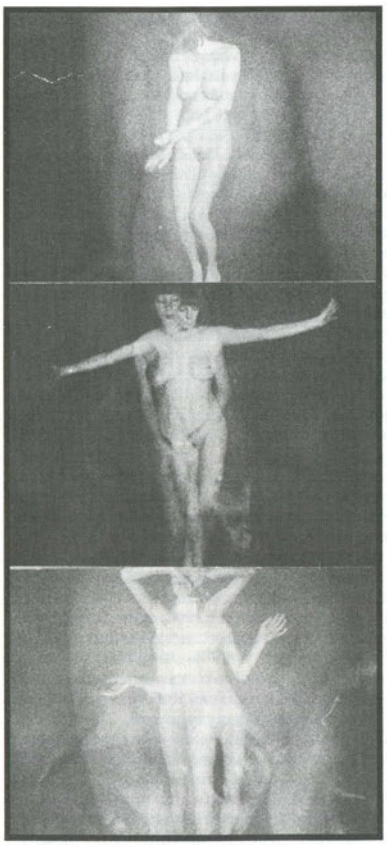


Illustration 6.4: Götterdämmerung

body - leaves large areas of the image unexposed - portions continue to remain available for further exposure.

All fades are implemented by closing and opening the lens with appropriate f-stop settings. I overexpose a particular scene by one or two f-stops in order to give the image prominence in the multiply exposed (final) image. I attempt to create fluid fades marked by a sense of ease and assurance, racking from a point of focus to a position of obscurity and vice versa.

Upon completing the nine exposure runs, I send the film to the lab for processing. All visual effects have been implemented in-camera. A workprint is hardly necessary as no cuts will be made except those required for titles and head and tail leaders. After editing for titles and to achieve sync with the soundtrack, the lab strikes prints from a single A-roll.

Title: **Fatehpur Sikri, 16 mm, color, 11 min.**

Filmstock: Eastman Commercial 7252, double perforated, ASA 16
Filter: Wratten 85
Camera: Bolex H16 SBM
Lens: Kern Switar 10mm, f1.6,Kern Vario Switar 12.5mm - 100mm, f2
Filming speed: 12 f.p.s.

Objective: To create a film from documentary-style footage collected over a 3-month journey in India which will be manipulated through techniques which are specifically non-documentary - i.e. multiple exposure runs, etc. Thus, to create pictorial and narrative density by extending the image content and self-consciously achieving metaphorical relationships between images which reveal different aspects of Indian culture within the artistic, social and personal realms. To create a personal vision of a personal experience. See Illustration 6.5.

Process: I film the material at 12 f.p.s. in order to ensure its suitability for later optical printing, as there are often dramatic exposure differences within a particular scene/image, between sequences, etc. This material will be extended and slowed further.

Upon completion, I review the material and select those images/sequences which are most appropriate for my objectives. I choose the performance of a classical Indian dancer, two street scenes and a long take of an ornamental window located in the palace of *Fatephur Sikri*.

I order 2 prints of the marble window image - one on High Contrast Reversal and one on High Contrast Negative. Both prints will cancel one another out if cued in the bi-pack mode. All effects will be achieved in-camera, thus A-B rolling will, in this instance, be an unnecessary procedure. I use ECO 7252, ASA 25 for the optical printing process.

Step One: I optically print the footage of the dancer at a 50:1 ratio, thus each single frame in the printerhead is extended for 50 frames of camera original in the following manner - 25-frame fade-in/ 25-frame fade-out; rewind the camera 26 frames (First frame = start up); forward the exposed location footage/cameramaster in the printerhead by one frame.

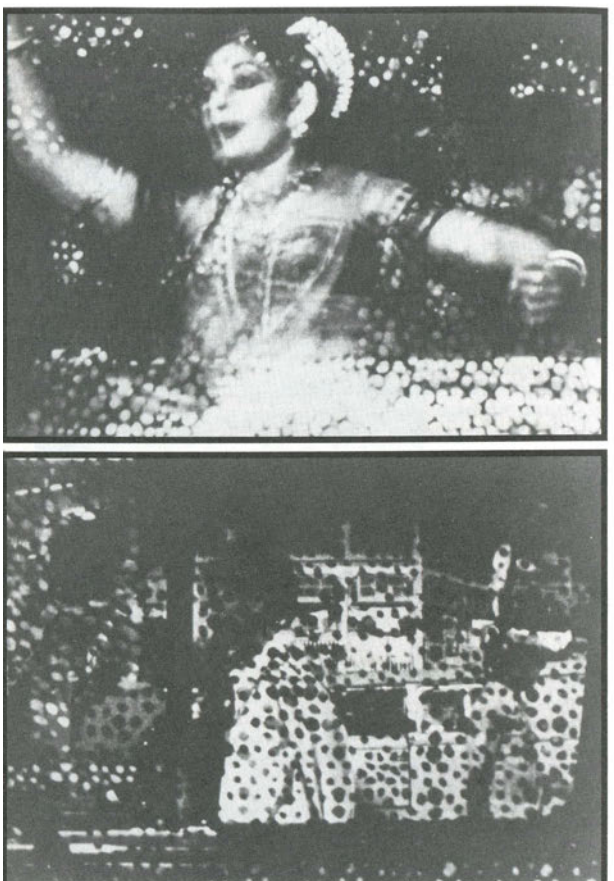


Illustration 6.5: Fatehpur Sikri

As the camera master contains a prolonged zoom of the dancer, the optically printed fade-ins/fade-outs

occurring within the frame extensions of 50:1 create an unusual effect in which the dancer seems to grow out of herself, evolving through a series of 1 second dissolves from a long shot to a close-up.

Step Two: I execute a second exposure run using the bi-pack method. Two exposed filmstrips simultaneously run in contact through the printerhead. One roll of footage contains the image of a street scene; the other roll is a High Contrast Reversal print of the ornamental marble window. During the optical printing process, the dark portion of the window image will serve to block out image areas within the street scene. These blocked out image areas will reproduce as dark, barely exposed patches within the frame - these patches allow for further exposure runs. Again, I extend each frame of the camera master with a 50:1 shooting ratio. The fade-in/fade-out design devised in the first run of the film is repeated. With an alteration devised to create and obtain alternating dissolves, I do not begin the second exposure run at the same point which I started the first. Because the majority of this footage is handheld and contains passages with subtle zooms, the optically effected extensions and dissolves will result in pleasantly "shifting" and "swimming" images.

I execute a third exposure run as a means of adding the second street scene. Again, concerned with image extensions, I shoot at ratios varying between 24:1 and 50:1, printing both fades and dissolves as in the earlier extension runs. As this particular sequence of location footage was shot through the marble window, another aspect/layer of the window's ornament is added to the design of the film.

As the selected scenes in the original location footage contained many dark areas, f-stop settings were determined for the exposure runs with proper consideration/evaluation of the original image to be reproduced. For example, as the dancer was photographed before a dark background, the triple exposure was treated as a double exposure with regard to the f-stop setting.

Viewing the portion of *Fatepur Sikri* excerpted in the videocassette provides a finished look at the manner in which transitions are effected between successive

exposure runs. Note the combination of the street scene and ornamental window grid and the effective use of the High Contrast Negative and High Contrast Reversal prints ordered earlier from the lab.

Placing both the High Contrast Negative and High Contrast Reversal in contact through the bi-pack mode in complete synchronization would result in a black image. Because the images used in the second exposure run were complementary, I shifted the registration, at times, thus synchronizing them only one or two frames apart and effecting an optically printed sequence in which the black image areas of the original possess highlighted contours. Further, the depth of the image and shifting quality was enhanced by this process.

The third exposure run overlaps with the second, containing scenes of the second street scene and printed in the 24:1 mode with equal fade-ins and fade-outs, which result in symmetrical dissolves.

The entire film progresses in the following manner: as the first exposure begins to overlap and then fade, leaving the second exposure to dominate the screen, the lens aperture is visibly adjusted as the second exposure run required only a one time exposure setting. The scene itself shifts in terms of speed from 2:1 to 24:1. As the original location footage was shot at 12 f.p.s., the 2:1 extension in the optical printing process elicits a standard speed of 24 f.p.s. The duration of the fades are, thus, constantly reduced. Additionally, a slow optical zoom is visible, effected during the optical printing process by altering the lens-camera-printer relationship.

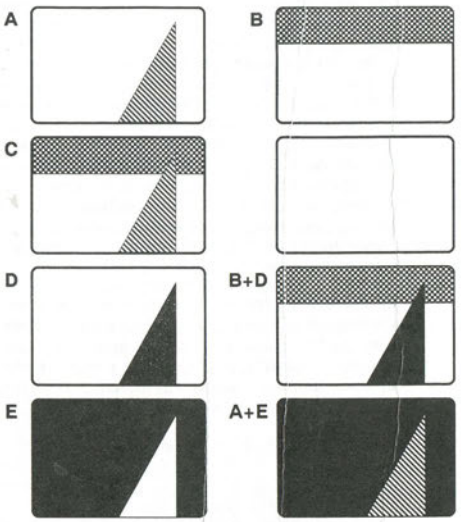
As the construction of the second sequence utilizes some of the basic principles of the traveling matte procedure (bi-pack printing), I think this is an opportune time to discuss, in detail, the means by which the travelling matte allows the filmmaker to combine different areas of different images in the creation of a unique, independent, optically printed image. The travelling matte allows you to block out those unwanted portions of an original image which you do not wish for inclusion in the composite image, while simultaneously allowing for the reproduction of select image portions. Effects produced through the use of a travelling matte differ markedly from those culled through superimpositions.

Travelling matte work does, however, require multiple exposure runs. In the commercial industry, travelling mattes are primarily used for title work or in connection with what is popularly referred to as the blue screen. (See Illustration 6.6). For example, an image in which a person is depicted hanging from an airplane's wing, while the ground below rushes past, is achieved by shooting the actor clutching at the "prop" airplane wing against a blue screen. Aerial footage, which simulates the space through which the actor passes, is combined with the blue screen image through travelling matte optical printing, resulting in a convincing shot of a person precariously dangling from a plane wing, high above a stretch of desolate terrain.

Of course, the travelling matte technique is another creative option to be exploited by the personal filmmaker, allowing the artist to combine unrelated image contents. The final, optically printed image remains somewhat mysterious, however, as the division between the composite images is never completely erased.

An additional, widespread use of the travelling matte process within the industry occurs in the creation of optical transitions such as wipes. In personal filmmaking, optical mattes of every imaginable shape and size can be designed to achieve effects extending far beyond the spectrum of those feasible within the strictures of commercial filmmaking. For example, compelling transitions can be effected when one shoots a manipulated or moving piece of black cardboard placed before a white background on black&white filmstock. Whether filming at either 24 f.p.s. or at a single frame rate, this effect elicits interesting visual configurations. HighCon reversal and negative prints of this footage ordered from the lab provide the filmstrips necessary (as in the second sequence of *Fatephur Sikri*) to install optical transitions during optical printing.

An optical wipe is implemented by bi-packing a scene from the location camera original and its HighCon negative or reversal print in the printerhead for a first exposure run. After rewinding the newly exposed reproduction of the bi-packed material, you repeat the process with another scene from the location camera original and its HighCon negative or reversal print. The transition between the two scenes will be articulated as a wipe.



Film A is the first Reversal master-image, which you want to combine with Film B, the second Reversal master-image, into film C. In order to block out certain areas during travelling-matte bi-packing printing you need film D and E. Film D is a high contrast black&white Reversal of Film A, film E is a high contrast black&white Negative of Film D.

Now you print Film B together with Film D in a bi-pack operation: the high contrast black&white Reversal will leave the area unexposed where you want to fill in Film A. After rewinding the camera you print (on top of the B+D exposure) Film A together with Film E. Film E will leave all areas unexposed except area for film A.

In order to obtain precise matching, perfectly blocked HighCon Reversals and Negatives are required. Thus you have to shoot with the special blue screen process, or you have to block out certain areas by a hand painted matte. However, for experimental purposes the process described above offers exciting and wonderful results.

Illustration 6.6: The Principle of the Travelling Matte

Title: **San Francisco Zephyr, 16mm, color, 78 min.**

Filmstock: Ektachrome Commercial, ECO 7252, double perforated, ASA 16
Filter: Wratten 85
Camera: Bolex H16 SBM
Lens: Kern Vario Switar 100 PTL, 12.5mm-100mm, f2
Filming speed: 12 f.p.s.

Objective: To create a personal feature-length film which not only chronicles a foreigner's impressions of his travels through the United States, but also explores the nature of the filmic medium. To create a filmic language, which though visible to the viewer through foregrounding techniques, conveys a narrative of some depth with subplots which perhaps function on an allegorical, musical and/or poetic level. The components of narrative content and filmic structure should reinforce one another. The film is subtitled "*A Filmic Glassbeadgame; The Open Artwork* " as a reference and tribute to the Herman Hesse novel entitled *Glassbeadgame* and the concept of the "open artwork" as devised in Umberto Eco's book *Das offene Kunstwerk.*

The majority of the location footage compiled for the film was shot at 12 f.p.s. to ensure the quality of subsequent optical printing work. In the pre-planning process, I devised that most of the optical printing work would involve frame extensions, which would effectively transform the location material through a slow-motion effect. To achieve rhythmic balance, I also shot a portion of the location material at a 1:2 ratio, providing greater image variation from frame to frame. This particular effect could also have been achieved during the optical printing phase by reproducing every other frame of the location original.

Process: I initially work with some footage culled from a shoot at a rodeo in Montana. Most of the material is handheld and involves zoom work. I pre-select the footage to be used for optical printing through a process of categorization, considering both the elements of content and structural/stylistic power. I analyze the content of each shot, differentiate between tripod and handheld material, consider the camera movements involved, note lens types employed as well as their focal range and zoom capability, color, etc. and, finally, separate out that

material which is particularly suitable for matte work. This manner of classification/separation allows me to effectively build rolls for optical printing. With regard to the rodeo footage, I splice together shots which chronicle the development of the rodeo from preparation through to the competitive events in assigned rolls to be printed consecutively, i.e. a) The Preparation Roll, b) The Opening Ceremony Roll, etc.

The optical printing of the rodeo footage requires a variety of operation/printing modes, generating single frame extensions and multiple exposures/superimpositions. Often, I use techniques which will elicit effects of great subtlety, occurring so rapidly and fluidly that the spectator will not recognize the manipulation on a conscious level. The dominant printing ratio is 6:1 over a fade-in/fade-out structure. Thus, I execute a 3-frame camera fade-in followed by a 3–frame camera fade-out. I then rewind the camera 4 frames (accounting for one safety frame). I advance the film in the printerhead by 1 frame and repeat the 3-frame fade-in/fade-out procedure. This process continues over select sequences producing 3-frame dissolves, which create an effect by which the reproduced version of the location material now passes at 1/4 of a second slower per frame than its original template.

Additionally, I excise consecutive blocks of frames from the original in order to pictorially advance an optically printed passage/sequence and to effect striking superimpositions between similar image blocks. Consider the sequences in which the flag-carrying riders enter the arena. These are printed in several modes with extensions ranging from 3:1 to 24:1. I also construct soft-focus superimpositions. Exposing an in-focus passage at a slightly out of focus setting, I combine the in-focus and soft-focus passages to achieve a superimposition from which the image "bursts" out at the viewer. Subtle optical zooms as well as the advancement of objects/figures within the actual image enhance this unusual effect.

Again, this project involves the stack printing mode to achieve images which flow out of each other in a more forceful and noticeable manner than that effected by a dissolve. As a reminder, such a sequence would be constructed as follows: a) 8-frame camera fade-in, b) 16–frame camera fade-out, c) rewind camera for 9 frames, d) advance footage in pinterhead by 1 frame, e) 8–frame camera fade-in, f) 16–frame camera fade-out. I purposefully varied the optical printing modes / operations within the rodeo portion in order to underscore the power and force of the event. Slow motion and "bursting" effects thus dominate.

Illustration 6.7: San Francisco Zephyr

I previsualize "The Lake People" sequence as an exploration of the way in which human beings interact with nature, specifically a majestic landmark. I would like to create a sense of man's ephemerality in terms of his/her environment. Thus, people will appear and disappear before an "everlasting" mountain range skirted by the reflective surface of an impressive lake. To communicate this theme in a strong visual manner, I must obtain both barren and populated images of the mountain range.

I initiate a first exposure run of the mountain range/lake area during a period in which no tourists are present. I rewind for a second exposure run which I give prominence in the final superimpositions by effecting a brighter image, through slight overexposure. (See Illustration 6.7) The second exposure run contains populated images of the landmark. I optically print this material in a 40:1 stack printing mode: 24-frame camera fade-in; 24-frame camera fade-out; rewind of 25 frames; advance footage in printerhead by 2 frames, (thus every other frame will be reproduced); 24-frame camera fade in; 24-frame camera fade-out, etc. I then execute even longer extensions of 5 seconds for each frame in the printerhead. In this instance, I use the camera's spring motor rather than the slow, single frame motor to effect this optically printed exposure run. And I consult the frame counter rather than count the frames individually.

In the segment I entitle "Eagle Flight", I wish to transform a simple long take of an eagle flying into a magical/mystical sequence which will articulate the spirit of flight. I use an extended stacking design as the primary printing mode for this segment: 6-frame camera fade-in; 6-frame camera fade-out; rewind the camera film by 10 frames; advance the film in the printerhead by one frame; 6-frame camera fade-in; 6-frame camera fade-out, etc. As stacking in this manner provides a greater number of exposures than those achieved in a dissolve, the aperture must be adjusted accordingly. In this instance, I set my f-stop at a point suitable for a double-exposure, which necessitated closing down an additional f-stop.

In the "Journey " sequences, I desire to invoke the dream-like sensibility of the traveller who for the first time observes the ever-changing landscape of the United States - the viewer passes from the freeways of Los Angeles to the wheat fields of the Midwest to the skyscape of Manhattan, when a train suddenly returns him/her to the countryside and then to the environs of Chicago. Time and space are both compressed and expanded as locations rapidly blend together through a fluid, trance-like construction. In this portion of the text, I employ a variety of printing modes. I film the location footage, however, at 12 f.p.s. to enhance the subtle blurring effect which occurs as one photographs scenery from a moving vehicle. Those objects/figures in the foreground of a composition seemingly streak across the image area, actually appearing and then disappearing over the course of a few single frames.

In the optical printing phase, I use printing modes which will slow down the passage of the scenery. Further, I create multiple dissolves and superimpositions to elicit the impression of softly flowing, ever-changing images - the dream-like state which I previsualized. Suddenly, the NYC skyline streams into a rural graveyard - but the effect is not jarring , nor does it feel abrupt to the viewer. In essence, the singular locations become one. Clouds, mountain peaks and the jagged outline created by an urban skyscape discover an essential harmony. The printing modes I use range from 3-frame to 12-frame fade-ins/fade-outs.

I shoot the original footage for the mountain/landscape sequence from a tripod, utilizing the full 360° available in both the panning and tilting ranges. I also use several zoom speeds while filming. Tripod movements are implemented in both leftward and rightward directions.

I complete the shoot with an in-camera effect - a superimposition using handheld images which record the reflected surface of a river. Later, in the optical printing phase, I effect extended and multiply exposed fade-in/fade-outs to create smooth dissolves.

In the "Niagara" sequence, I apply the same technique used in the *Empor* clip shown in the accompanying videocassette, by simply photographing upward moving images directly from an upward moving filmstrip, transported at a regulated speed through the printerhead. The optical printer operates in the continuous/forward mode to prevent stoppage. Several exposure runs will elicit superimpositions of slightly different aspects of the famous waterfall. Additionally, the composite exposures are distinguished by small optical zooms which create a sense of depth. The original location footage contains images of churning greenish blue water, rising mist and the sparkling quality of moving water as light falls upon it. The optically printed superimpositions will capitalize upon the inherent sense of liquidity and effect a transparent "look."

I decide that the "Parade" sequence should conclude *San Francisco Zephyr* , as I shot the footage during a Fourth of July celebration in the title's city. I know that this material will challenge my optical printing skills, as I wish to realize with innovation and inventiveness a unique and explosive "look". I use single frame printing as a basic approach.

This approach will allow me to combine, in a fraction of a second, vastly different images with disparate contents - to truly indulge in an Eisensteinian concept of montage. This mode of optical printing empowers the filmmaker with unlimited narrative potential. He/she gains the physical power to shift viewer attention through the force of the filmic process itself. In principle, the single frame mode enables elements derived from any image source, however different, to be combined within a time element as small as 1/12 of a second - a time equivalent to the passage of two consecutive frames. (See Illustrations 6.8 and 6.9)

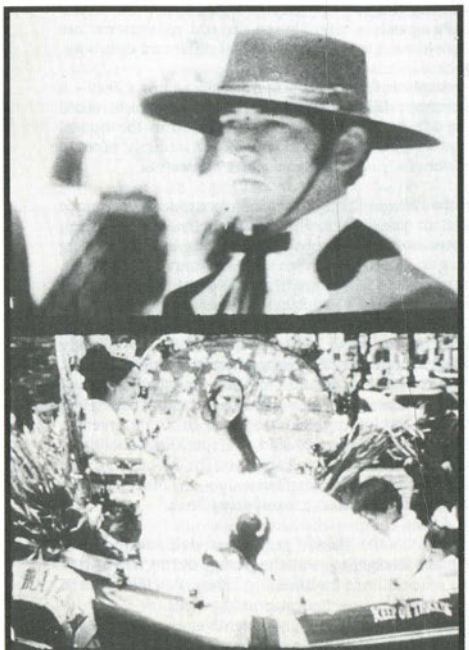
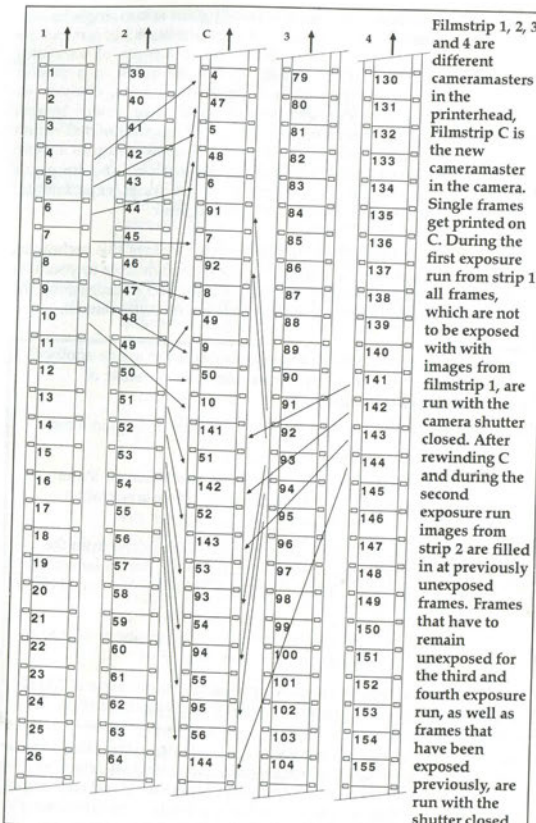


Illustration 6.8: **Two Consecutive Frames from San Francisco Zephyr**

As the visual impact of such a filmic construction is largely unknown and further an unexplored terrain for most filmmakers, one might consider the following discoveries which I have made working in the single-frame printing process. It is a process which empowers the filmmaker providing an unlimited source of images and materials for aesthetic experimentation. Single-frame printing allows one to create intricate image constructions possessing a subliminal force, impacting upon the viewer with great subtlety. A thematic concept or idea may be articulated through structures which emphasize a particular frame or block of frames with frequency, color and/or focus alterations. Through a variety of transmutations, a particular image may be displayed in a reduced and/or enlarged format, as an optical zoom, as a point of increasing focus or obscurity. (See Illustration 6.8/Two Consecutive Frames from *San Francisco Zephyr*). Essentially, any of the techniques reviewed in this text may be applied within the parameters of single-frame printing.



Filmstrip 1, 2, 3, and 4 are different cameramasters in the printerhead, Filmstrip C is the new cameramaster in the camera. Single frames get printed on C. During the first exposure run from strip 1 all frames, which are not to be exposed with with images from filmstrip 1, are run with the camera shutter closed. After rewinding C and during the second exposure run images from strip 2 are filled in at previously unexposed frames. Frames that have to remain unexposed for the third and fourth exposure run, as well as frames that have been exposed previously, are run with the shutter closed.

Illustration 6.9: Multiple Exposure Run

No viewer is capable of isolating one or two single frames, each possessing a total of 1/24 of a second of screen time during projection. However, a stream of carefully selected images edited and orchestrated in a precise manner will convey a particular theme, emotion or narrative idea with alacrity and unusual power. Several narrative lines of great complexity are articulated within seconds, minutes. Narrative suddenly becomes a more creative and exciting formal option - no longer a traditional terrain which the personal/experimental filmmaker rejects and revolts against.

When designing a film which employs this technique, consider the multiple possibilities available to you. Use the following guidelines to assist you in unleashing the power inherent in the single frame. Ask yourself:

- How do different blocks of single frames relate to one another? Graphically? Thematically? Does color create a sense of continuity or collision?
- What effect do quick fade-ins and fade-outs possess in a film structured in this manner?
- How will multiple-exposures/supers serve to enrich the image content, bridge blocks of single frames, enhance narrative structures?
- Which images will provoke an immediate response from the spectator - human faces, eyes, sexual images, particular colors, movements, shapes? Which images will have a prolonged effect upon the viewer?
- How many different single frames will a spectator be able to absorb in a one, five or ten minute screening period?
- What narrative structures are appropriate to this form of filmic construction? How many narrative threads can be sustained?

As suggested above, in exploring the single-frame technique, psychological, physiological and aesthetic questions arise. It is both a stimulating and challenging option for the filmmaker to consider. The questions give way to exploration and discovery.

The illustrative film clip from *San Francisco Zephyr* contained in the videocassette combines source material from a single event - a parade - restructures my initial visual impressions into a whirlwind of images

possessing a distinctive rhythm, unfettered from one's normal perception of the event as it occurs in "real" time.

Process: Single-frame optical printing simply involves the manual opening and closing of the camera's variable shutter with the exposure of each frame. Of course, this application also applies to predetermined blocks of frames which you might wish to expose - in other words, the building block unit which you utilize may be as small as a single frame or as large as a series of frames. You may create checkerboard patterns of images by photographing select portions of the camera master (the exposed footage which is threaded through the printer) with unexposed portions of camera original spacing the exposures. The unexposed portions of camera original are exposed after rewinding and may involve the photographing of an entirely different camera master - another means of in-camera editing.

Checkerboard patterns impact upon the spectator perceptually. The assemblage of images itself will determine the quality of the effect upon the viewer. In my experience, images or scenes which are printed at a 1:1:1 ratio (1 frame exposed with content A1, 1 frame unexposed, 1 frame exposed with content A2, etc.) produce the most visible effect. The single frame which was left unexposed, placed in the middle of A1 and A2, will be exposed during a later run with filmstrip B. The breaking of continuity, of the consecutive relationship between A1 and A2 will result in the articulation of a new message, in the foregrounding of the filmic material, in the disturbance of the spectator's normal viewing patterns.

While the film clip shown combines distinct scenes through a series of block constructions, remember that it is possible to combine single frames from as many as twenty-four sources within a second of screen time. It is especially essential to record all of the optical printing operations which you employ in order to construct your film properly - for example, to know which single frames or block of frames are being exposed, to know which images from the camera master have been utilized, to maintain order in terms of the rewinding process and subsequent exposure runs.

Title: **Winterlandschaft (Winter landscape), 16 mm, color, 13 min.**

Filmstock: Ektachrome Commercial ECO 7252, ASA 16
Filter: Wratten 85
Camera: Bolex H16 SBM
Lens: Kern Vario Switar 100 PTL, 12.5-100mm, f2
Filming speed: 12 f.p.s.

Objective: To create an almost 3-D effect through the A, B and C rolling of selected images which were multiply photographed at a variety of film speeds, on reversal and negative stock, etc.

Process: This film, combining footage shot over several years, contains images of Norwegian landscapes photographed at 12 f.p.s. to accelerate the speed of the drifting clouds as they pass between the mountain peaks. Alternatively, images of waterfalls and rivers were photographed at either 24 or 48 f.p.s. to create contrast in terms of rhythm. This footage compiled and edited into a 10 minute film constitutes the basis for the subsequent steps.

This film is threaded through a projector, run at a standard 24 f.p.s., and projected onto a small screen to maintain image brightness. The projected film is re-photographed with a Bolex camera, which is mounted on a tripod and placed at an angle vis-a-vis the screen. Eastman High Speed Color Negative Film (5294), ASA 400, is the selected stock. During projection styrofoam flakes are dropped from a point above the screen in order to create a greater sense of depth. The beam of the projector's lamp not only lights the flakes as they float downward, but also augments their shadow patterns. Because the camera is placed slightly off the optical axis of the projector/screen, the shadows as well as the flakes are visible as concrete, rather than abstract, entities. Composed of different film speeds during the shooting process, the resultant footage will alter the projected original in terms of rhythm and image quality, etc.

The exposed footage is sent to the lab for processing and a one-light workprint is requested. Upon the return of both the original and workprint, I edit rolls A, B and C to achieve multiple-exposures, fades, dissolves, etc. The A roll contains the original used for projection. This roll, the product of in-camera editing, is flicker free and provides both a natural and stabilizing element throughout the film, as would a tonic note in a musical composition. The B roll contains the reversal workprint culled from the negative original. It contains the expected flickering patterns from the projected A roll, together with passages of falling flakes and their patterns as they stream across the original, projected images. Naturally, the C roll contains the negative original.

The illusion of a 3-D effect is created by shifting the B and C roll during the conforming process so that they do not achieve perfect synchronization in terms of image matching. A 2 to 3 frame displacement creates a trailing effect in which one sees, for example, the "positive shadows" of the styrofoam flakes subtly following or tracing the negative image of the shadows. The 3-D effect is also emphasized by creating extended dissolves (up to 5 seconds in duration) between the B and C rolls. In other words, what has been a reversal image in the B roll evolves into a reddish, negative image in the C roll. This interchange between identical images creates the illusion of depth. Further, I create an alternating pattern in terms of the direction of the interchange (from reversal to negative, from negative to reversal) to augment the effect. (A word of advice: labs do not traditionally print negative stock in it's negative character; thus, it requires extra determination upon the part of the filmmaker to persuade the lab to comply with your wishes).

Title: **Lichtblick, 16 mm, color, 12 min.**

Filmstock: Ektachrome Commercial, ECO 7252, ASA 15
Filter: Wratten 85
Camera: Bolex H16 SBM
Lens: Kern Vario Switar 100 PTL, 12.5-100mm, f2
Filming speed: 24 f.p.s. and single-frame

Objective: To create a visual poem of an ornamental and musical character. To create a sense of flow between ever-changing structures.

Process: I shoot the entire film during a two week period in the in-camera editing mode. All optical effects and operations are implemented during the shoot on location. Thus, the film is in a "finished" form with the completion of the shooting. No further editing is required, except the addition of titles and sound rolls and the splicing together of the 100' film rolls.

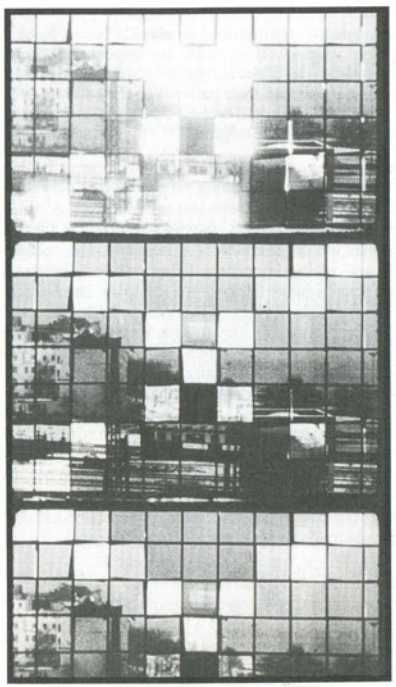


Illustration 6.10: Lichtblick

The screenplay is designed and developed according to my aesthetic objectives and goals. The script details all aspects of the text - the fade-ins, fade-outs, dissolves, the alteration of color filters, the necessary changes in f-stop to achieve image brightness and image prominence in supers, the single-frame patterning and the duration of each exposure. (See Illustration 6.10)

In order to create the effects I desire, I build an oversized matte box to place before the camera at each location site. This matte box consists of a large frame, divided into 77 separate sections - all controllable in that I can block out or admit light into any of these sections. 77 fitted black cardboard squares serve as a successful means to prevent the entrance of light. The matte box is a stationary piece, remaining in the same location vis-a-vis the camera once shooting has begun. (See Illustration6.11)

The camera is mounted on a tripod and positioned to face the frame at a central point. Different exposure runs are implemented. As most of the film is scripted according to a 5 second time frame, the film is generally rewound at every 5 second interval. Under my design up to 19 exposure runs are required to complete a film which will

possess complete, patterned images, each composed of 77 image sections. For example, initially, I shoot a pattern consisting of 12 image sections. The remaining 65 sections are blocked off during the shooting process and, thus, remain unexposed. After rewinding, the 12 previously exposed sections are blocked off and perhaps another pattern of 8 sections receive exposure, leaving a total of 69 sections to be blocked off in total. In this manner, the images slowly become full or complete. The camera is rewound 20 times for a 19 time exposure run.

Illustration 6.11: Photo set-up Lichtblick

Notice that if you compose such a film that the image will jump as it does in this piece. The jumping effect results from the frequency of the exposure runs and re-winding process, as the perforations are slightly damaged by the strain.

Of course, each single exposure run allows one to implement any of the effects discussed in this text, i.e.. fades, filter changes, f-stop alterations, etc. Changing f-stops results in either brightening or darkening the exposed sections. You can see the impact of this effect during the final "flicker-flacker" of the single-frame sequence in which the image seems to bend outward toward the center. Brighter sections were strategically placed toward the center of the image while ever darker

sections extend out toward the borders of the image. The flickers range from 1:1 [one frame closed (black) to one frame exposed (image)] to 4:4 or 4:1. During single-frame operation, the camera is operated by closing the variable shutter for the unexposed single frame and by opening up for the subsequent exposed frame.

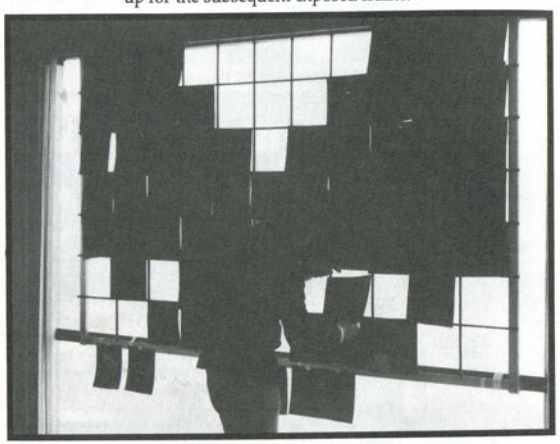


Illustration 6.12: Detail of Photo set-up Lichtblick

Additionally, a second layer of exposure is achieved at a different focal length in order to create the sensation of depth. The entire film itself involved both day and nighttime shooting, scenery changes, etc. You will note these alterations through careful viewing of the 77 section composite images. With location changes, accuracy in terms of the camera's position vis a vis the frame must be maintained in order to achieve precise alignment among the sections.

To conclude, this film was finished with the completion of the shooting process in terms of optical effects and editing. Lacking only a soundtrack, I attempted to find a composer who was open to the type of film which I make. As a matter of process, both Klaus Schulze (*Lichtblick*) and Eberhard Weber *(San Francisco Zephyr*) developed scores for my films through repeated viewings.

Chapter Seven

7

Transcript of "The Experimental Films of Bastian Clevé"

This chapter is a transcript of the interview to the accompanying video cassette.

BC: My name is Bastian Clevé. I was born in Munich on January 1, 1950. I received my artistic and filmic schooling both in Hamburg and at the San Francisco Art Institute. Since 1979, I have been living and working in Los Angeles.

I: You have made over 30 experimental films. Is there a fundamental difference in approach to this manner of filmmaking?

BC: Yes. Basically, there are two distinct avenues by which I approach my own work. I may begin with an idea for a film without having a clear vision of what the resultant piece will look like. Thus, I explore the medium and test its limits as a means of articulating my own thoughts and the experience of making the film. In the film *Echo,* for example, I move and operate the camera very quickly, while journeying through a room to a landscape in order to obscure the identity of passing objects. In such filming situations, I do not know in advance what the character of the images will be.

In other instances, I am quite scientific in my approach. I begin with a theory or concept and accordingly apply those techniques appropriate to the creation of those previsualized images which fill my mind. If there is no known technique to produce the desired results, then I experiment and often build my own equipment in order to achieve my objective. This approach is often elaborate, laborious and slow. Pieces which involve

single-frame printing are especially time consuming. The film *Kaskaden* is a product of this particular method: I began with a normal tilt up a tree; and later I manipulated the location footage through the use of an optical printer, employing a variety of possible techniques - slow motion, multiple exposures, colored filter changes, mirroring, manual movement of the filmstrip, etc. - to accomplish those images which were dwelling in my mind's eye.

I: You exhibit basic elements of the filmstrip itself, such as sprocket holes. Do you want to foreground the basic elements of filmmaking?

BC: Yes, and I use these elements of filmmaking in an alternative manner - not to reproduce reality, but to create a new, purely filmic reality. In the film *Zenith* , basic material aspects of the filmstrip function as 'actors'. I try to create visual music and establish a sense of purity, that is why I left the film silent. There are, of course, other films in which I emphasize the materiality of film. In *Empor,* I was interested in the physical effect which is engendered at the very end of the film.

I: Audiences expect to be shocked and challenged by experimental films. What is your position on this?

BC: I am not very interested in shocking the audience. I regard my films as a form of entertainment. Entertainment defined as an intellectual and sensitive form of stimulation. Despite the fact that *Götterdämmerung* created quite a controversy with its premiere at the Oberhausen Film Festival in 1974, I had intended only to create a film about the beauty of rhythm, dance and music. The film plays with the letters of the filmic alphabet, such as the interplay between a point of focus and a point of imperceptibility or the interplay between different focal lengths, the passage from a fade-in to a fade-out or the layering effect of a multiple-exposure.

In the film *Fatehpur Sikri* , I try to express my impressions of a journey through India and Nepal. The technique of the travelling matte allows me to combine images of a classical Indian dance and contemporary every-day life in India. The superimposed window of *Fatehpur Sikri* is placed between these two building block images. In a sense this brings me to another thought on the need of the filmmaker to discover those filmic techniques which will appropriately articulate a particular theme. In the case of *Fatehpur Sikri,* the technique used enhances and underlines the content of the images, the essence of their interchange and the governing idea which I wished to express.

I: Most of your films are concerned with formal principles. Do you use any of these techniques to also tell a story, to narrate?

BC: Yes, I am currently moving in that direction. I am convinced that traditional stories can be told in a much more stimulating and dynamic way through the use and application of new visual methods and expressions. These [alternative devices] would allow the audience to be more imaginative itself. In fact, I attempt to create such a narrative in the feature-length film *San Francisco Zephyr* , which tells the story of a three-month journey through the United States and Canada. I use images from a rodeo, from Niagara Falls, from the Rocky Mountains and from a Fourth of July parade in San Francisco. The jazz musician, Eberhard Weber, created the soundtrack while watching the film. For him, the same principle of exploration and adventure governed his composition as it did for me - we both reacted to things which we had not seen before and created spontaneously.

I: Why do you use simple and everyday images?

BC: Basically I am interested in creating images and films which I have not encountered previously. By using everyday images and subsequently transforming them into something beautiful and poetic, I can explore new aspects of reality - a reality which was previously perceived as a known factor by both myself and the spectator.

In addition, I want to create a 3-D like effect in my work. I accomplish this by using the color-negative filmstrip itself...that is as itself. Also, I place materials between the camera, projector and screen in order to achieve a spacial impression.

I: Are there similarities between your work and the artistic methods and approaches apparent in other fields?

BC: Yes. I can understand that some of my work may be perceived as painting with light. I react to light as one reacts to music and thus compose with light. The process of filmmaking, for me, is similar to musical composition. I do everything by myself - beginning with the idea of the film, designing the lighting plan and executing the shoot, as well as the final edit. My works are, therefore, very personal.

The last film, *Lichtblick* , is like an optical poem;one of the objects - the Museum of Fine Arts in Hamburg - implies that artistic self-understanding resides within the context of the other arts. The musician, Klaus Schulze, composed the soundtrack for this film.