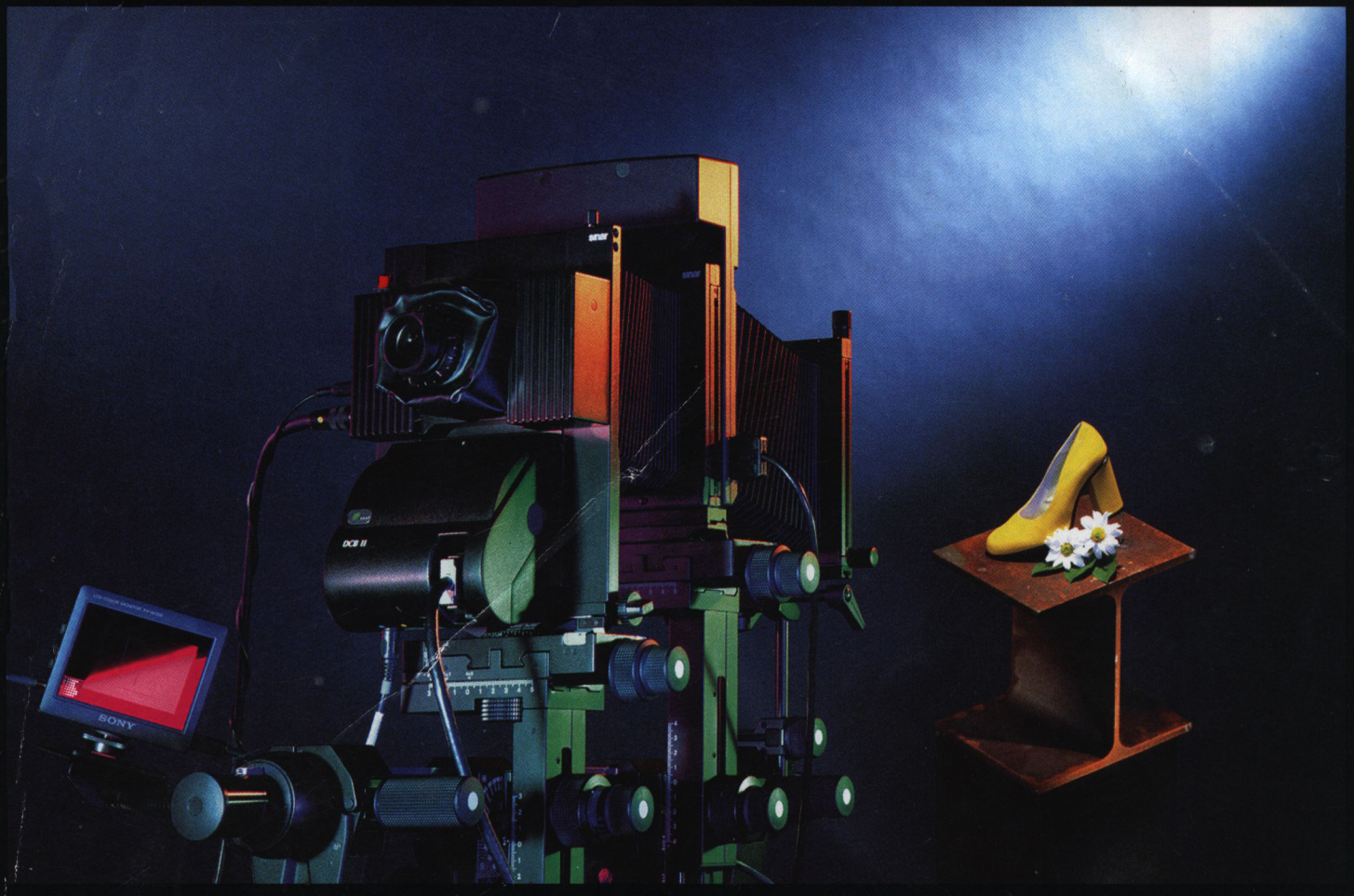
sinar
INFO 43

Digital Image Composition



Captured with a Sinar e/Leaf camera and a 60 mm Sinaron Digital lens. © Otto Versand.

Today about 80% of all top quality professional photographs destined for the printing press can already be produced better, faster and more economically with existing digital cameras. This startling fact surprised the entire quality-conscious industry.

The subsequent adaptation to the new technologies sparked a «digital revolution» that engulfed manufacturers, photographers, professional laboratories, advertising agencies and the prepress trade. A few enterprising pioneers quickly gained a precious marketing advantage and indispensable experience by investing smartly in technology and know-how. This enabled them to specialize (up to image storage on CD) or to present themselves as full service suppliers (from the photograph to the prepress stage).

As the competition intensifies, some future winners are already beginning to emerge: creative entrepreneurs in all phases, forging their way to success by making enterprising decisions. High quality professional digital photography, however, requires a greater initial investment than chemical photography.

Individuals who do not have the benefit of sufficient turnover, can acquire a digital camera in partnership with professional colleagues or join forces with partners in the reproduction business all the way to the prepress phase. Alternatively, advertising agencies or reproduction houses can establish their own internal digital imaging studio, which can then be used by photographers of their choice.

Perspective example, figure 1a:
Captured without any displacements with an 80 mm lens.

Figure 1b: *Captured with displacements on the rear standard (parallel shifting 30 mm) with a Sinar e/Leaf camera and an 80 mm Sinaron Digital lens at f/16.*

Technology and creativity

The fundamental optical and physical laws of imaging remain unchanged, regardless of which imaging technology is used. The moment of image capture largely determines how good the reproduction will be in the final result. The better the circumstances are of the time of capture, the fewer time-consuming and costly corrections that often appear unnatural and sterile will have to be made later. Therefore it should be the aim of every photographer working with digital imaging equipment to photograph the scene as perfectly as possible. To accomplish that, high quality equipment is a necessity.

A judiciously composed photograph, using the means of perspective, controlled lighting, the interplay of sharpness and unsharpness, and the sensitivity for the aesthetic potential of the scene remain the domain of the professional photographer. No system, however sophisticated, can ever replace the creative capabilities of human beings. Otherwise, if the camera system used for making the photograph is limiting the creative freedom, compromising the potential of the capturing device, inadequate conditions will result for the production chain leading to the prepress stage.

Perspective example

The self-locking, precise adjustment on the Sinar view cameras permit natural renditions or abstractions and they give the photographer virtually unlimited freedom in choosing the camera position.[1]

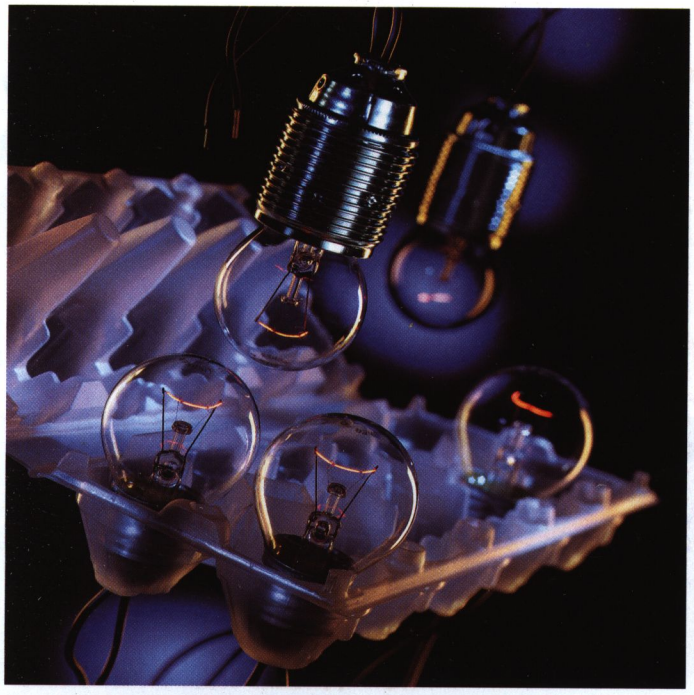
Example of Sharpness/Unsharpness

The Sinar p2 camera has a unique system of swing and tilt axes that makes it easy to position the plane of sharpness, which in turn permits the optimal utilization of the sharpness potential of the respective chips.
Very precise and self-locking fine drives and an asymmetrical two-point focusing system in which the swing and tilt axes are in the same plane as the CCD array are highly useful, especially with the small imaging area of 3 × 3 cm. If, for instance, a particular setting on a 4 × 5" camera requires a swing of 30°, on the smaller format that same setting would only require 8°! This increased need for precision also applies to focusing and depth of field.
When the definition of the specific focus planes is crucial, it is therefore much more convenient to use the Sinar e CAPCam. The 12x video magnifier, coupled to CAP software (Computer Aided Photography), makes it especially easy to perform pixel-sharp focusing on the important parts of the image. CAP software computes the optimal combination of adjustments and aperture on the view camera. This focusing accuracy increases the intrinsic quality of the image such, that even big enlargements (14x for the A3 size) are feasible. The Sinar e/pixel camera offers additional advantages to photographers who work with the depth of field hungry 7 × 10 cm format scanner backs that need continuous lighting: even with moderate continuous lighting and the resulting mild stopping down, CAP with scanner backs achieves a depth of field and sharpness performance that is comparable to that obtained with electronic flash and film.[2]

Example of color depth for optimal contrast

Whereas a Leaf 14-bit digital image can discern 16 384 tonal values (approximately 10 aperture stops), a transparency can just about manage 5000 (approx. 6 aperture stops). The final image printed on paper can only reproduce about 2000 tonal values (approx. 4 aperture stops). In order to retain the expressive power of the photograph in the printed reproduction, an experienced photographer has to control the

[1] Also see Sinar «Creative Large Format», Volume 1, Chapter 4.
[2] Also see Sinar «Creative Large Format», Volume 1, Pages 61, 70 – 72.
[3] Also see Sinar «Creative Large Format», Volume 1, Chapter 5.



Example of Sharpness/Unsharpness, figure 2a: *Captured without any displacements with an 80 mm lens.*

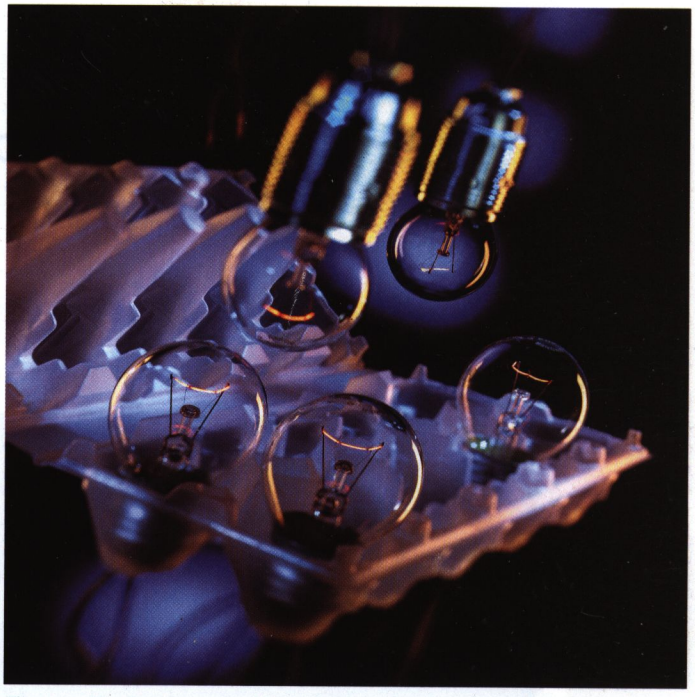


Figure 2b: *Captured with displacements on the front standard (19° tilt, -6° swing) with a Sinar e/Leaf camera and an 80 mm Sinaron Digital lens at f/8⅓.*

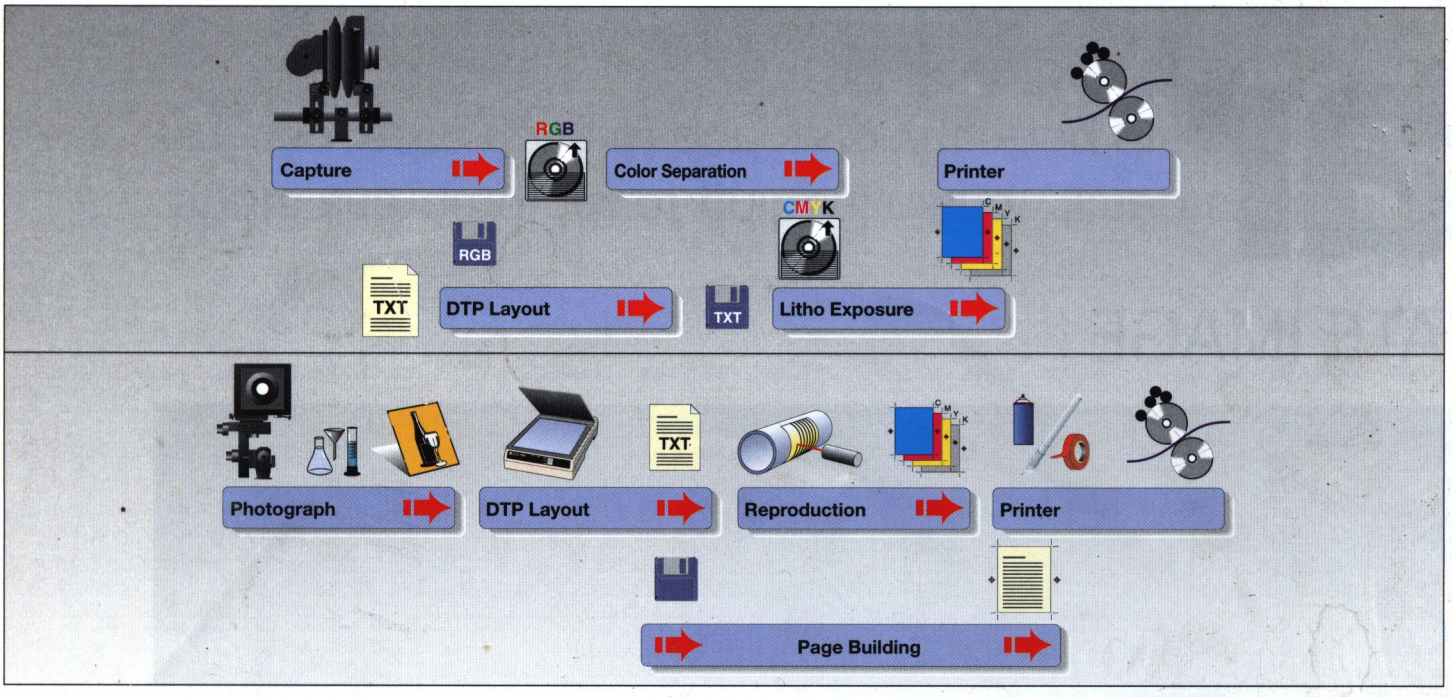
contrast by compressing the tonal values before making the original exposure.
When the original to be scanned is to be a transparency, the perfect tool for accurately controlling lighting conditions within the contrast ratio of highlights and shadows is the probe exposure meter, such as the Sinar Expolux System. This will prevent costly «surprises» like the one shown in figure 3a.
Life is much easier for the digital photographer. With the great color depth of an imaging system such as the Leaf DCB, very often it is not even necessary to rearrange the lighting in order to obtain the desired pictorial effect. The photographer simply selects the desired compression from the enormous wealth of tonal values by freely selecting the highlights, shadows and middle tones. The image data, whose large tonal value range is stored in the 14 bit HDR format on CD, makes it possible to select a compression with different parameters at any time in the capturing software, for instance for more detail in the highlights, etc., without the need for an expensive re-shoot.[3]

One-shot or tricolor exposures?

In chemical photography, the choice of image recording material (i.e. film) is already dependent on the desired quality. This choice is also present in digital photography. The ability to record color ima-

Example of color depth for optimal contrast, figure 3a: *Automatic 8-bit compression. Scanned transparency with overall light metering; without metering with the probe at the film plane resulting in subsequent correction of the illumination.*

Figure 3b: *14-bit digital image optimally compressed to 8 bit under the same lighting conditions. Captured with a Sinar e/Leaf camera and a 105 mm Sinaron Digital lens at f/16.*



Digital and conventional workflow: *Loss-free communication with digital data from the original photograph all the way to the printed reproduction results in a faster and more favorable picture production with higher quality than the traditional procedure, that involves several steps, without a common standard.*

ges with the use of digital sensors where each single pixel is equipped with color filters makes it possible to take color photographs with a single exposure. This technology, however, does not retain the entire color information of all pixels. Missing data is computed by interpolation. One-shot photography is primarily suited for moving subjects, such as people.
Thanks to better color separation data as compared to one-shot sensors, imaging sensors that work with three separate exposures (tricolor) in the three primary colors achieve better color quality in the final product. Photographs taken with three separate exposures are especially well suited for high quality photography of stationary subjects in a studio.

The picture market of the future

The demand for professional high quality digital photographs with a creative touch is bound to grow in the long-term. The image-oriented consumer of the looming 21st century will only be impressed by strong and impactful images, much in the nature of icons. The avalanche of images resulting from the new digital communication possibilities and the growing variety of magazines will only accelerate the trend towards creatively composed still images.

The ever accelerating pulse of civilization demands increasingly faster processing times. Simultaneously, the growing demand for flexibility in image production is reinforced by the individualization of society.
Whereas the client up to now could only get an approximate impression of the outcome of the production process by means of an instant RGB Polaroid proof, digital imaging systems now permit an immediate evaluation of a CMYK proof, which is a lot closer to the future end product, thus allowing an early intervention if needed.

Digital adrenaline surge

Working with digital imaging is much more immediate: a digital image is on the screen in its full resolution in only a matter of seconds, and this leads to intensified creativity and pictorial composition. Loss-free transfer of electronic data makes it possible to have parallel work sequences as well as interactive production processes. These new working methods also save time and money. Ongoing real-time control protect the photographer and the client from later disappointments. Standardized quality management ensures color fidelity, contrast and sharpness quality all the way to the finished reproduction.
The technological evolution of the nineties assures the professional photographer a successful transition into the new millennium. Creativity, photographic competence and a receptive understanding for the coming multimedia-oriented world will enhance his or her strengths vis-à-vis the competition.

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