Hello — and thanks for taking a look at my work!

My name is Rich Kurz and I am an experienced graphics design professional. My philosophy has grown simpler through the years. Good design is not about me, but about us. I want to do good work that serves the needs of my client and that I am proud to put in my portfolio. This pdf shows some of my capabilities.

Note that all concepts and initial drawings are owned by Hewlett-Packard Co. The images in this document are my own and are under copyright to Rich Kurz.

Perhaps my first tour-de-force in Photoshop was the cover image for "Reviewing and Testing Desktop Scanners". It involved elements both scanned and created in the program, and then all layered together. It took three days using Photoshop 2.1 on a Mac IIfx with an 80 MB HD. The layers feature of Photoshop 3 was a HUGE advance! Just as good were the spot illustrations that visually explained the different terms described in this guide.

The guide itself was a marketing piece written by an engineer from the scanner division for other engineers who would review the product. So the drawings all had to be technically accurate. It was a good introduction and I learned how scanners really worked. I even got to talk with Baxter Black to secure permission to use one of his cartoons!

The document went thru a revision the next year. The leather look was scanned from a green stamp album and then color shifted. I incorporated scanned images into the original inside spot graphics, which improved their ability to show what was happening.

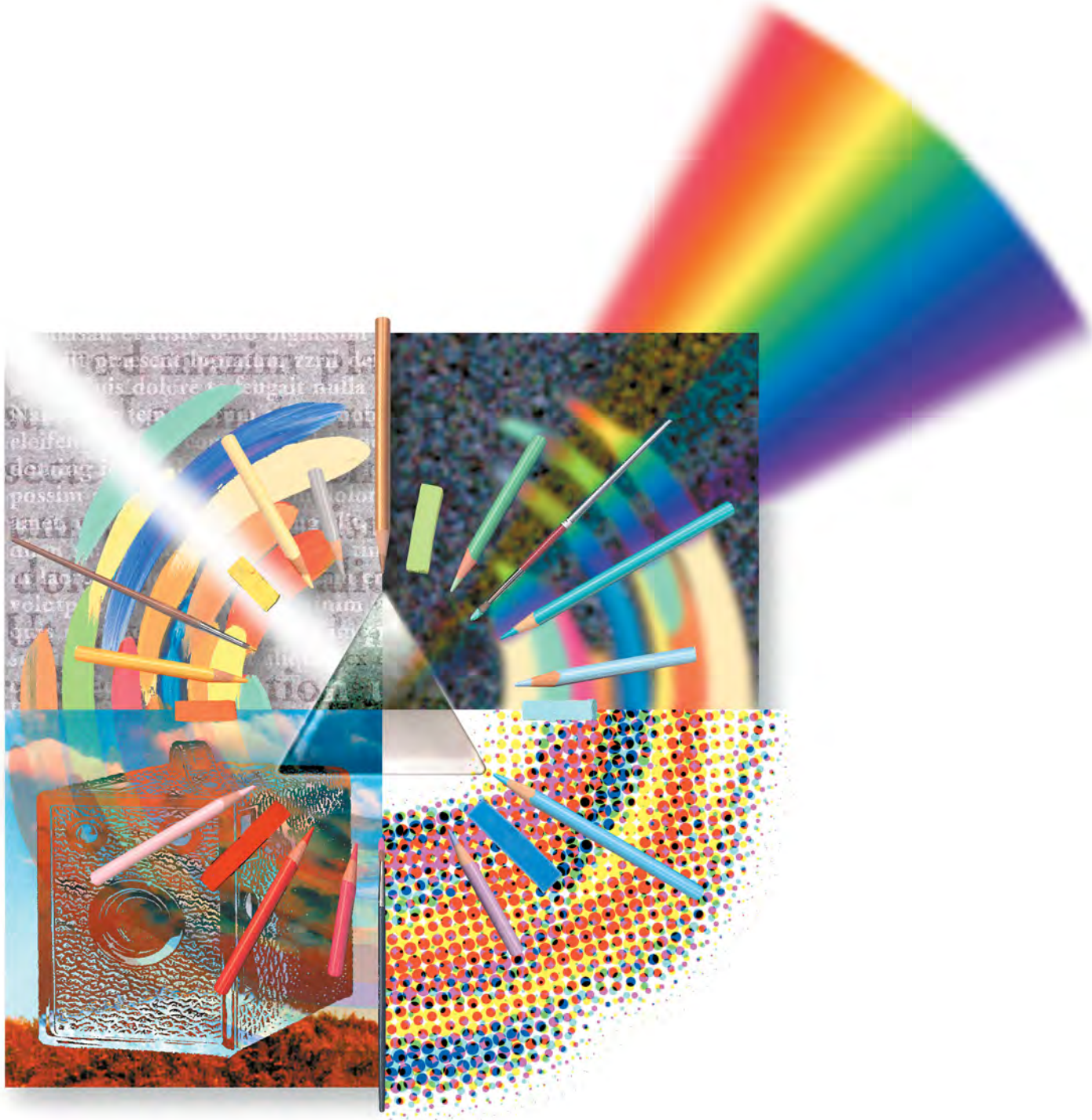
Two years later, a third revision required another cover design, and would be perfect bound. And this time, the inside images would be in color instead of black and white. I recreated them in color and redesigned the cover, still keeping the original image.

Deliverables: front & rear cover, 8½"×11" trimmed, spiral bound (1st & 2nd editions), CMYK (plus gloss laminate for the 3rd edition)
Cover created in Photoshop and from scanned images
Spot illustrations created in CorelDraw and Illustrator using scanned images
Provided Matchprint of covers for printer

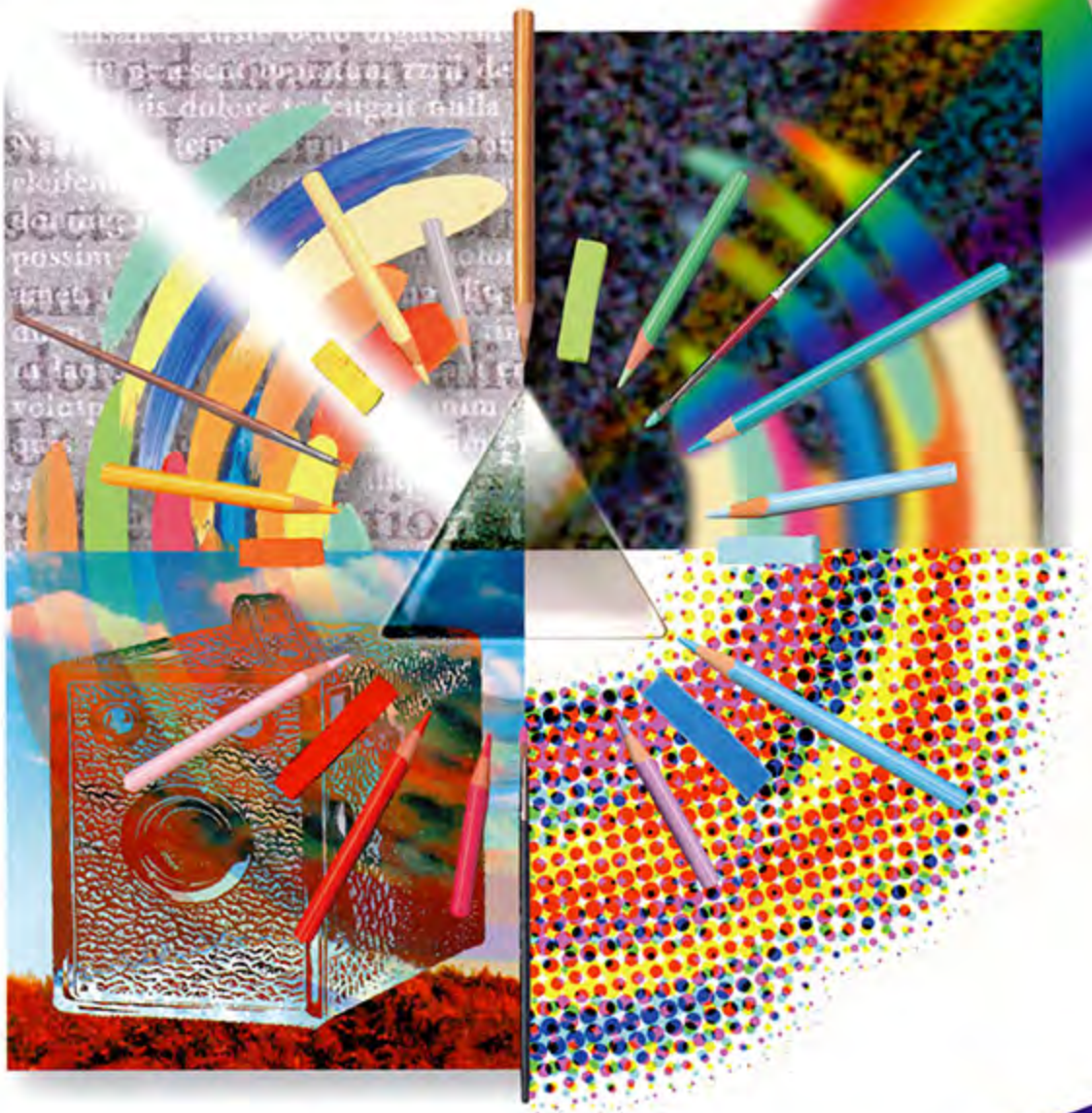
I am available to discuss your design, illustration, marketing, and advertising needs. Let's talk!

Rich Kurz

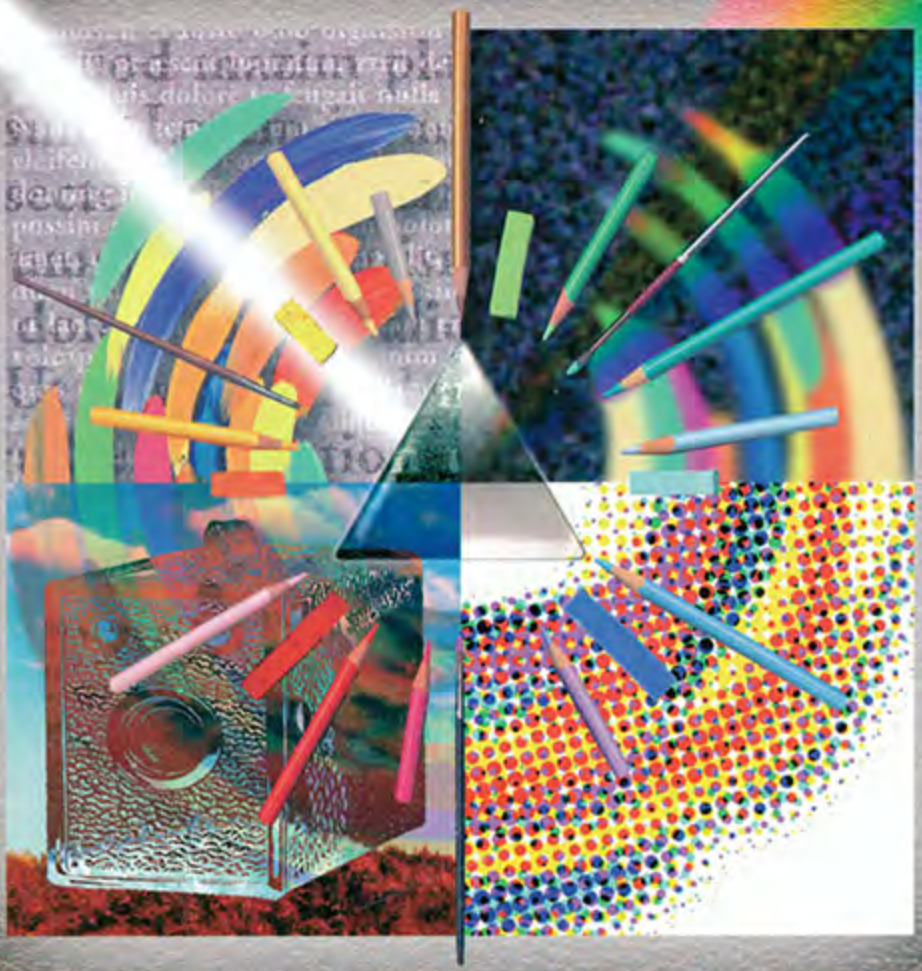
4801 14th St. SW / Loveland CO 80537 e-mail: rkweb@richkurz.com CALL 970-308-2891



Reviewing & Testing Desktop Scanners



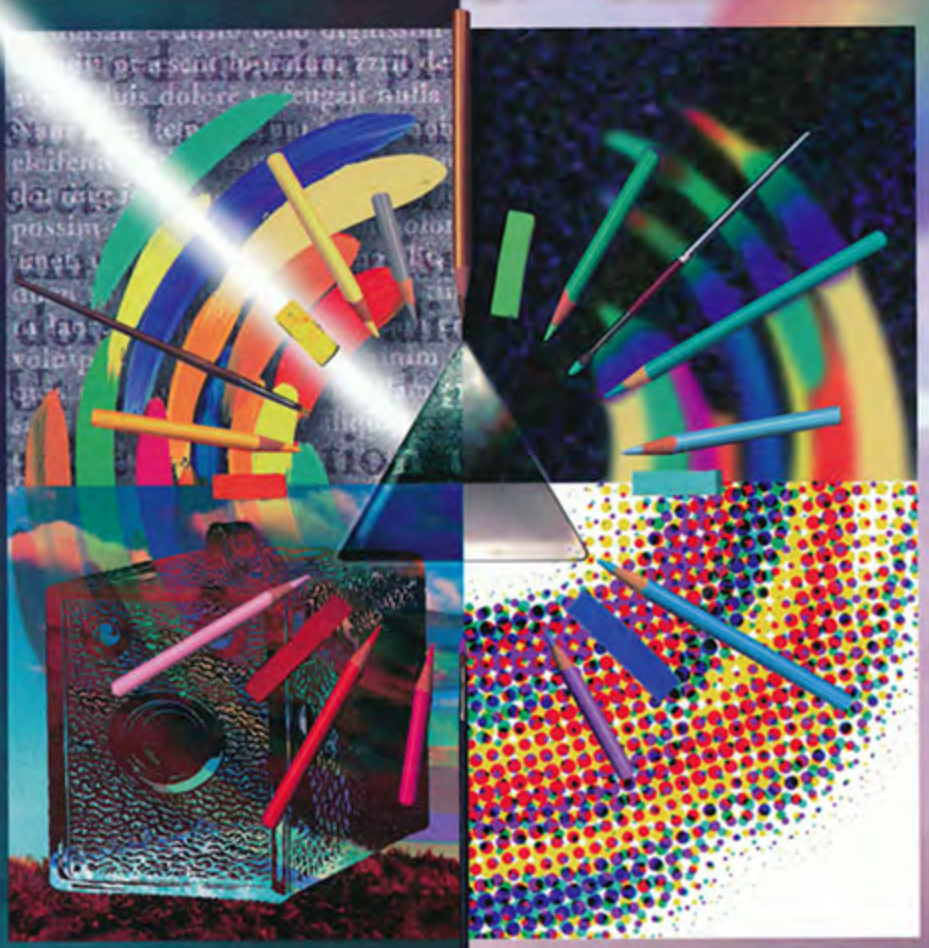
HEWLETT PACKARD



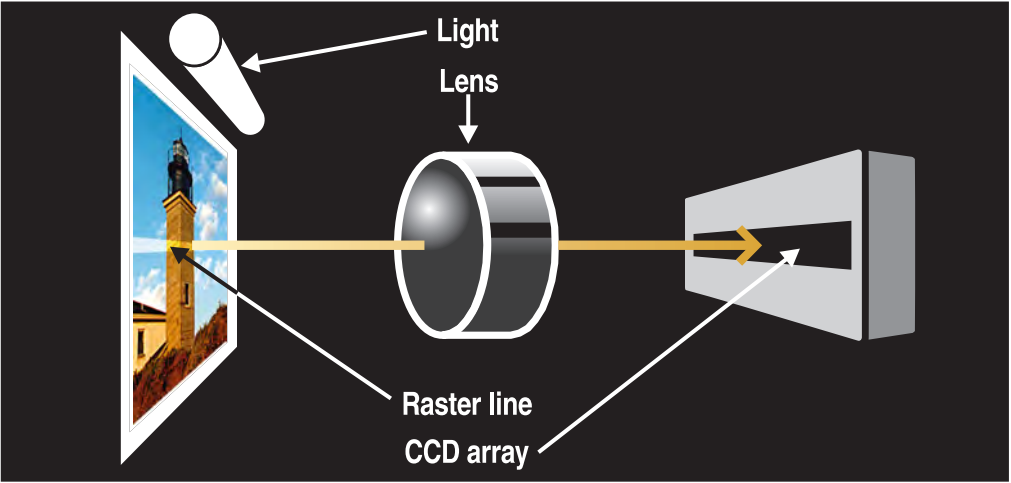
REVIEWING and TESTING DESKTOP SCANNERS

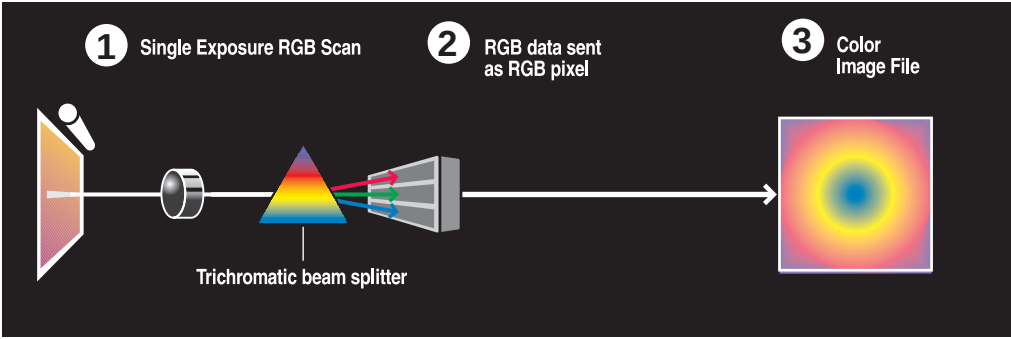
HEWLETT PACKARD

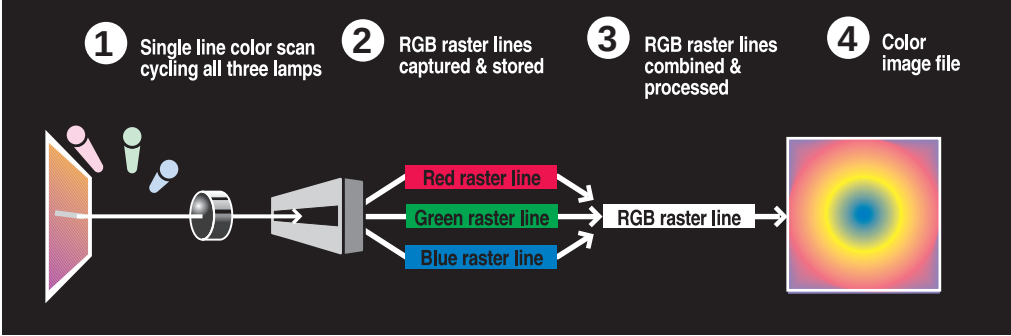
REVIEWING and TESTING DESKTOP SCANNERS

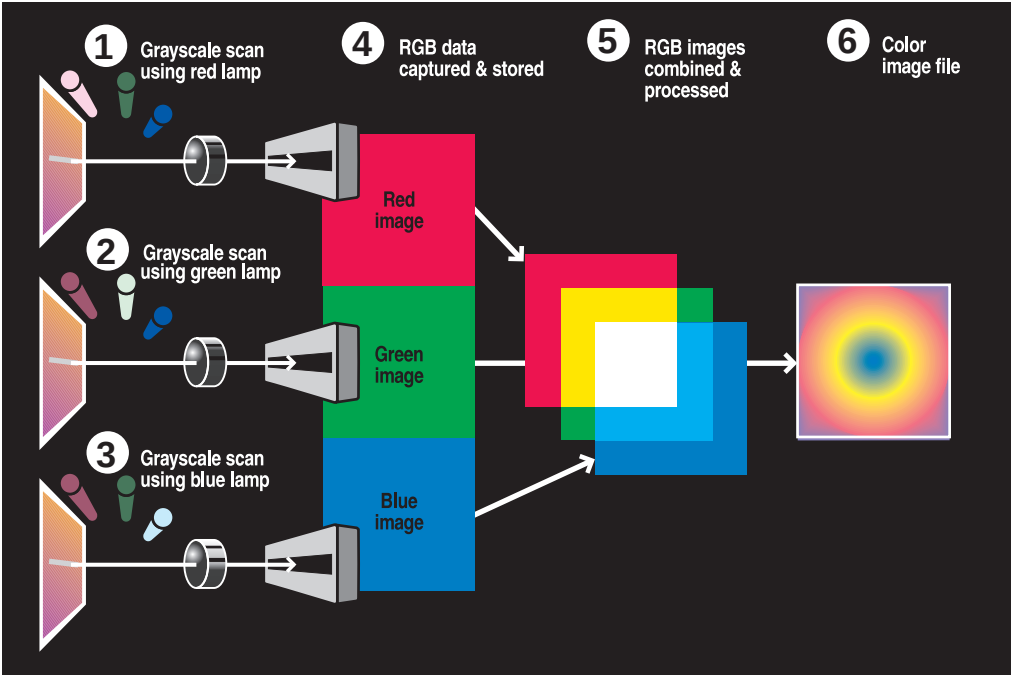


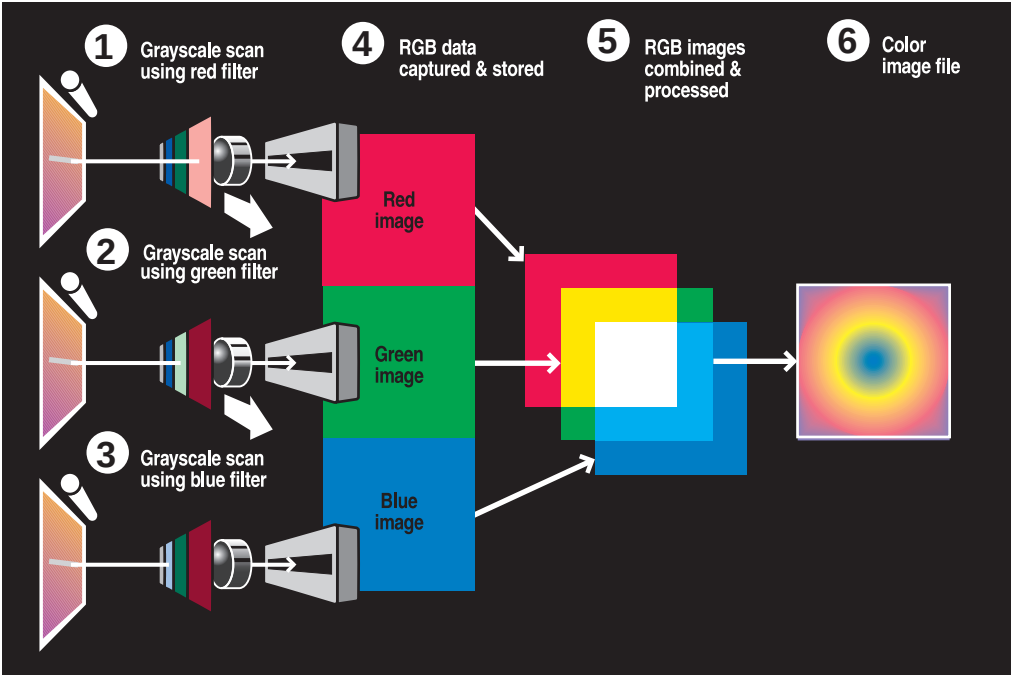
HEWLETT PACKARD

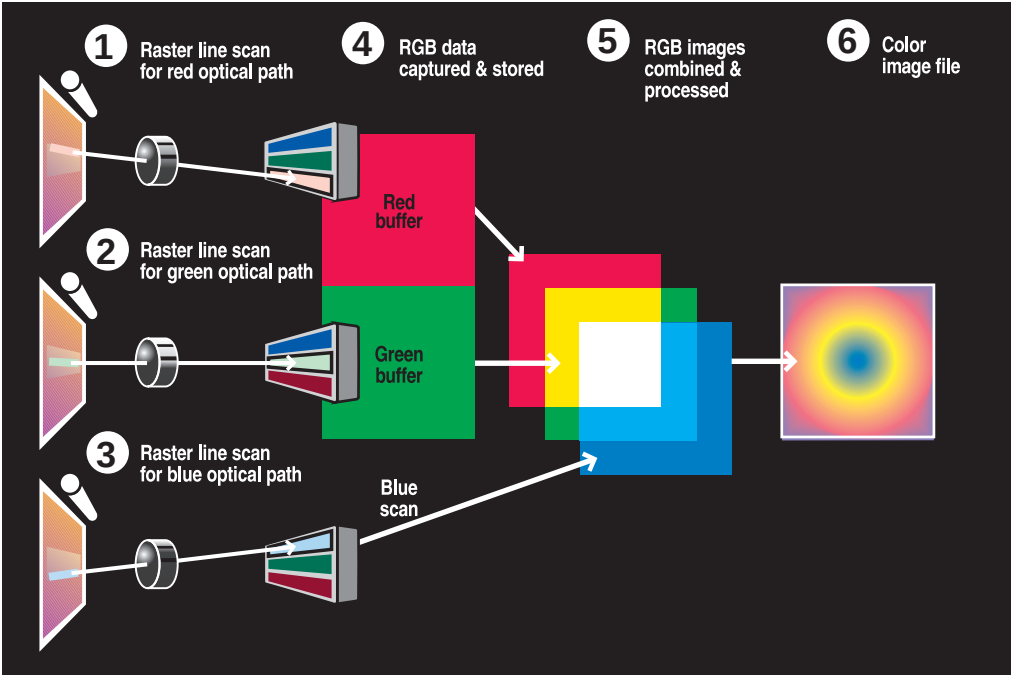

Light
Lens
Raster line
CCD array

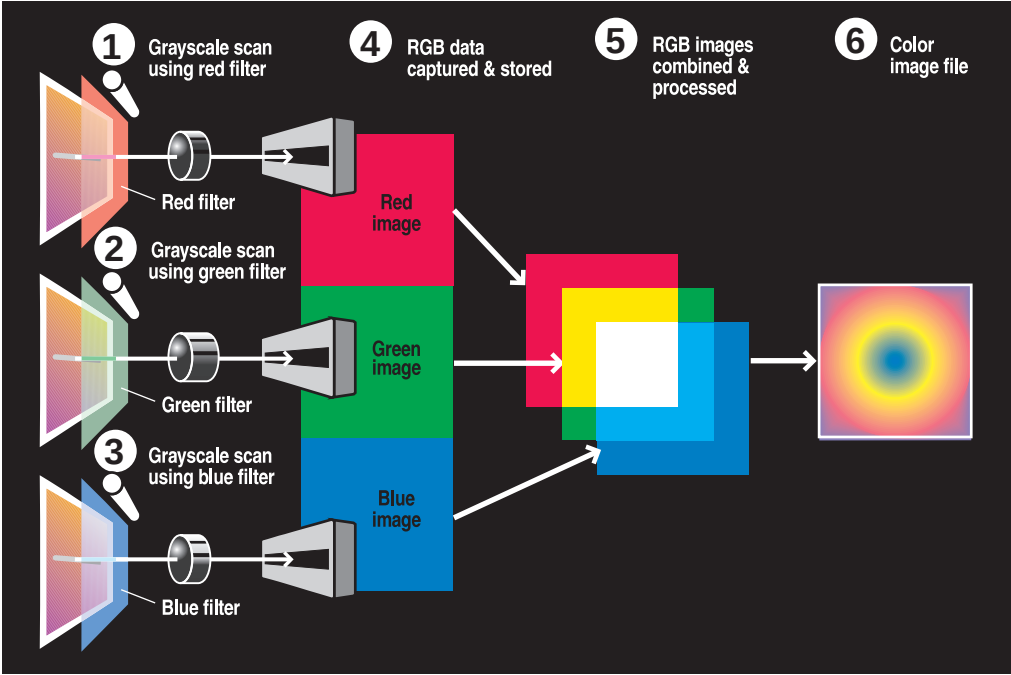

1
Single Exposure RGB Scan
2
RGB data sent as RGB pixel
3
Color Image File
Trichromatic beam splitter

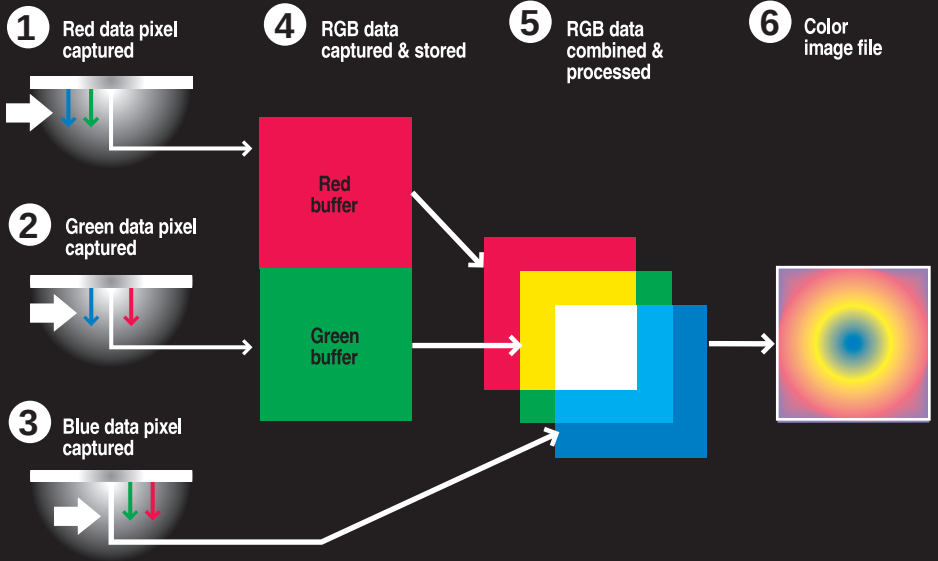

1
Single line color scan cycling all three lamps
2
RGB raster lines captured & stored
3
RGB raster lines combined & processed
4
Color image file
Red raster line
Green raster line
Blue raster line
RGB raster line

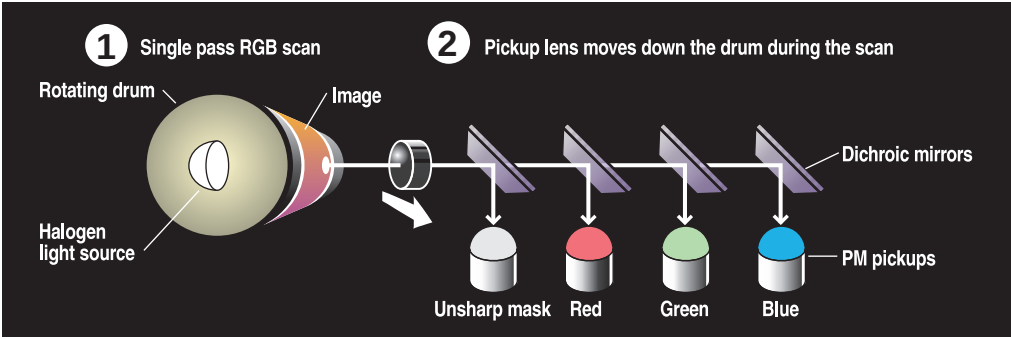

1
Grayscale scan using red lamp
2
Grayscale scan using green lamp
3
Grayscale scan using blue lamp
4
RGB data captured & stored
Red image
Green image
Blue image
5
RGB images combined & processed
6
Color image file

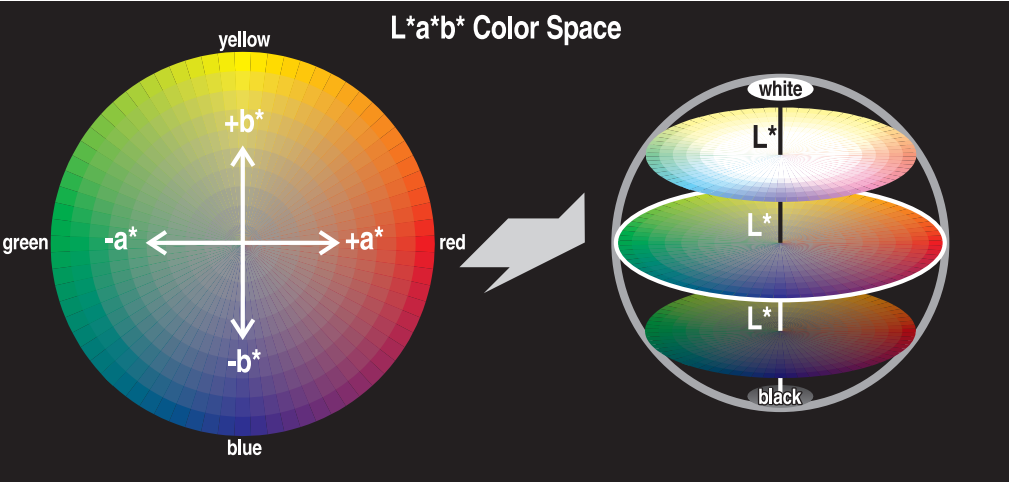

1
Grayscale scan using red filter
2
Grayscale scan using green filter
3
Grayscale scan using blue filter
4
RGB data captured & stored
Red image
Green image
Blue image
5
RGB images combined & processed
6
Color image file

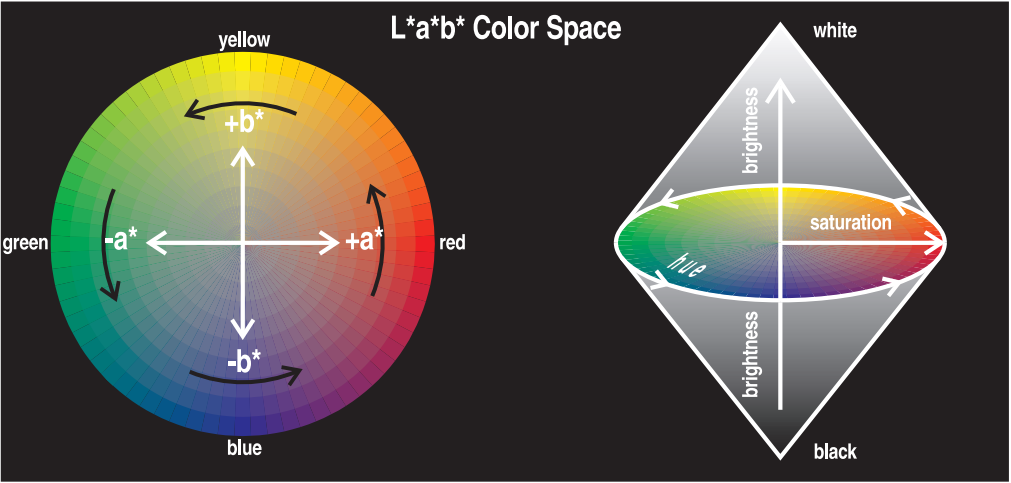

1
Raster line scan
for red optical path
2
Raster line scan
for green optical path
3
Raster line scan
for blue optical path
4
RGB data
captured & stored
Red
buffer
Green
buffer
Blue
scan
5
RGB images
combined &
processed
6
Color
image file

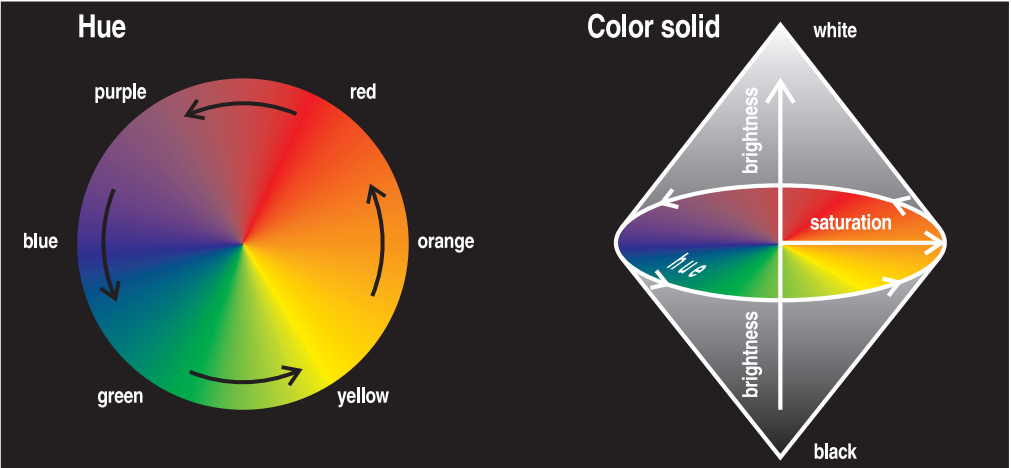

1
Grayscale scan using red filter
4
RGB data captured & stored
5
RGB images combined & processed
6
Color image file
Red filter
Red image
2
Grayscale scan using green filter
Green image
Green filter
3
Grayscale scan using blue filter
Blue image
Blue filter

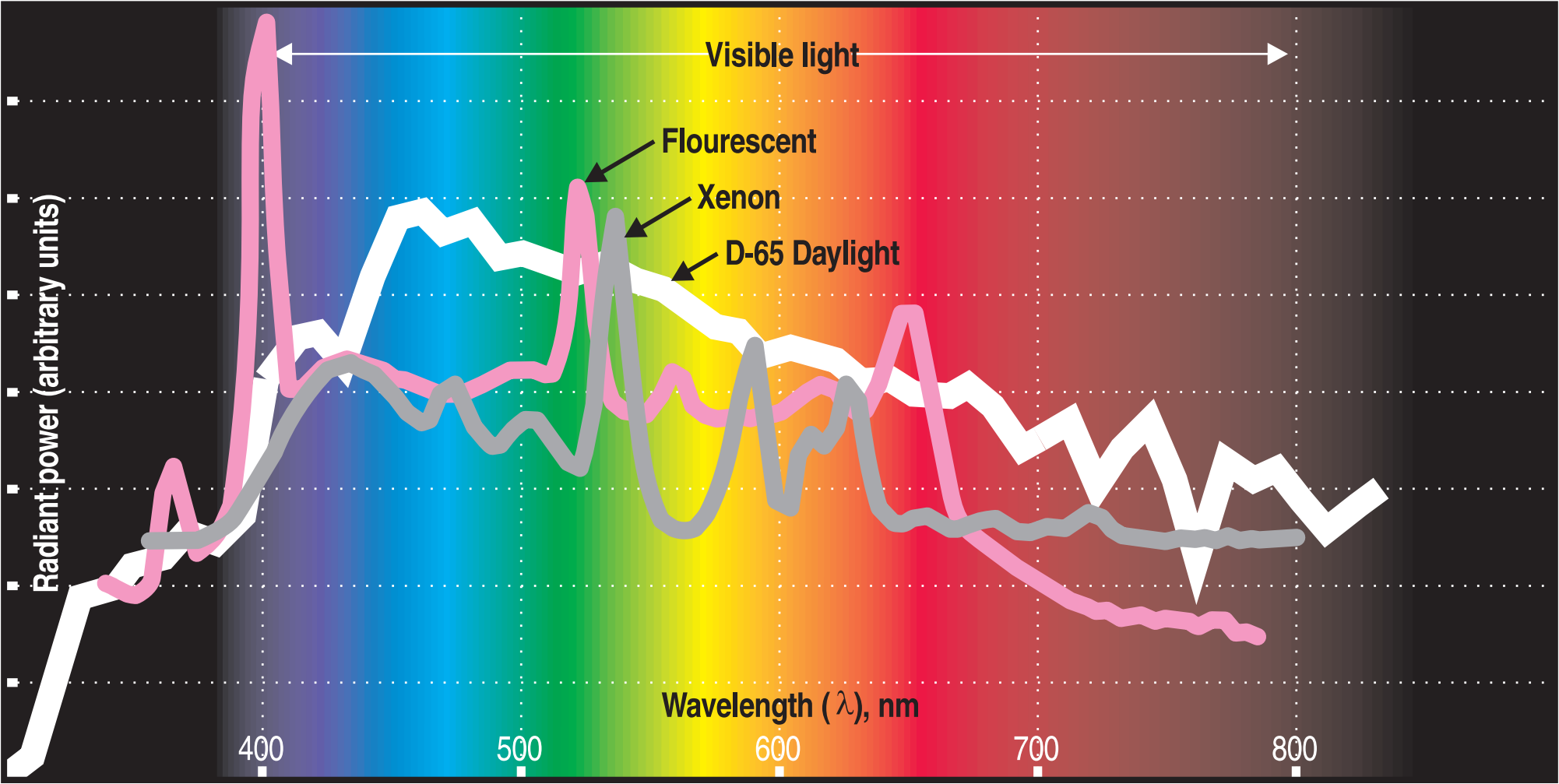

1
Red data pixel captured
2
Green data pixel captured
3
Blue data pixel captured
4
RGB data captured & stored
Red buffer
Green buffer
5
RGB data combined & processed
6
Color image file


1
Single pass RGB scan
2
Pickup lens moves down the drum during the scan
Rotating drum
Image
Halogen
light source
Dichroic mirrors
PM pickups
Unsharp mask
Red
Green
Blue


L*a*b* Color Space
yellow
+b*
green
-a*
+a*
red
-b*
blue
white
L*
L*
L*
black


L*a*b* Color Space
yellow
+b*
green
-a*
+a*
red
-b*
blue
white
brightness
saturation
hue
brightness
black

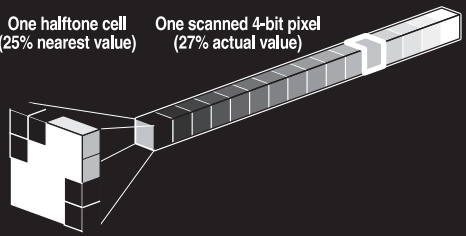

Hue
purple
red
blue
orange
green
yellow
Color solid
white
brightness
saturation
hue
brightness
black


Visible light
Flourescent
Xenon
D-65 Daylight
Radiant power (arbitrary units)
Wavelength (λ), nm
400
500
600
700
800

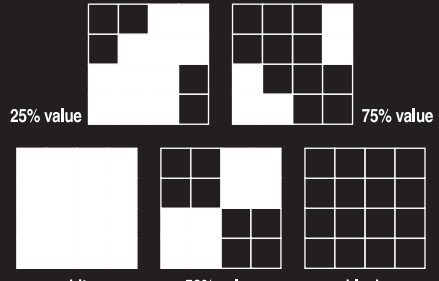
2 Relationship between Scanned Pixel & Printed Dither

Since black & white output devices (printers) can only print in one color, or shade, halftoning is used to convert an image with shades of gray to one with only black and white values.

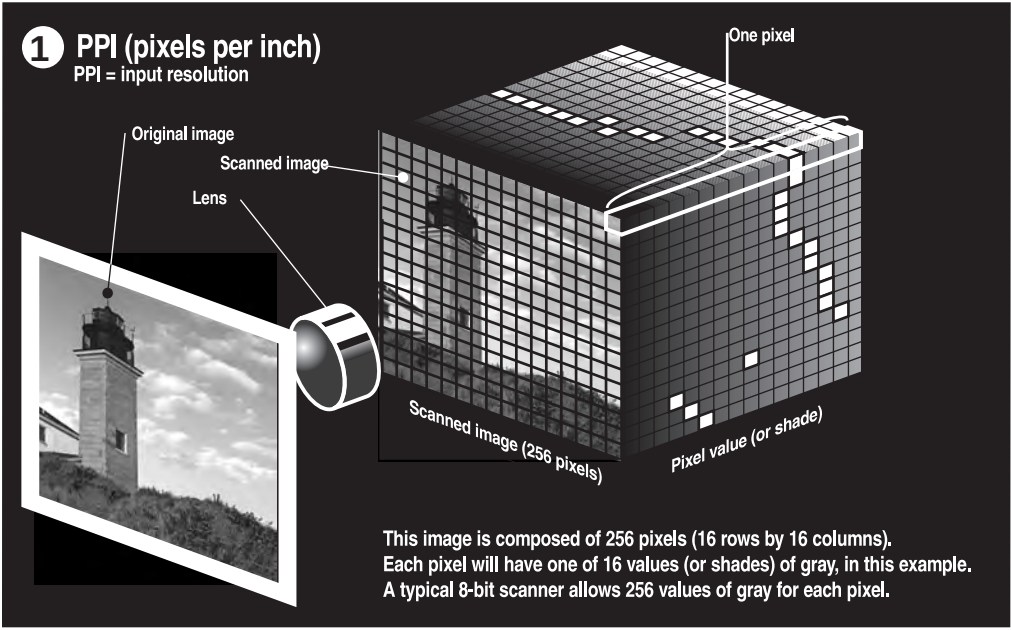
a Comparison of one scanned pixel with one halftone cell representing one pixel



b Line screen cells at 25% value steps



Instead of using one pixel with 16 values, the printer will use 16 dots (or pixels) with one value each. These 16 pixels become a single cell with 16 possible values and represents a line screen dot.


1
PPI (pixels per inch)
PPI = input resolution
Original image
Scanned image
Lens
One pixel
Scanned image (256 pixels)
Pixel value (or shade)
This image is composed of 256 pixels (16 rows by 16 columns).
Each pixel will have one of 16 values (or shades) of gray, in this example.
A typical 8-bit scanner allows 256 values of gray for each pixel.

Resolution of detail

A scanner should be able to resolve detail in both light and dark areas in the same image at the same exposure setting.

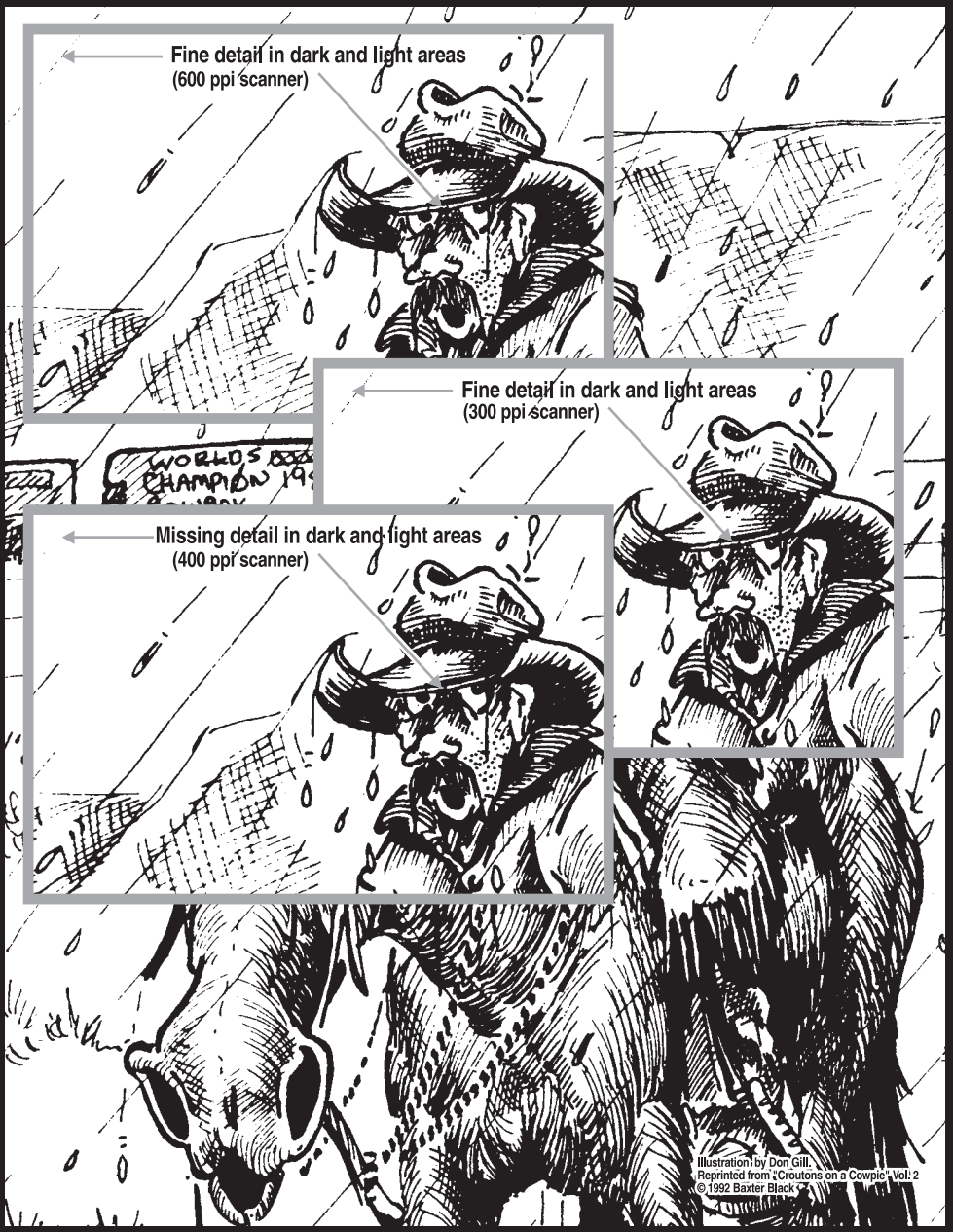


Illustration by Don Gill.
Reprinted from "Croutons on a Cowpie" Vol. 2
© 1992 Baxter Black

Jaggies and scaling method

1 Original image

2 Scaled by scanner

3 Scaled in application

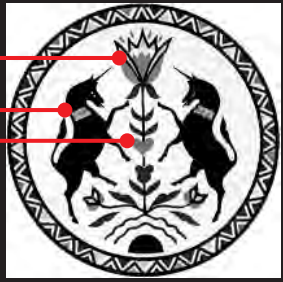
Full spectrum grayscale scanning

1 Original color image

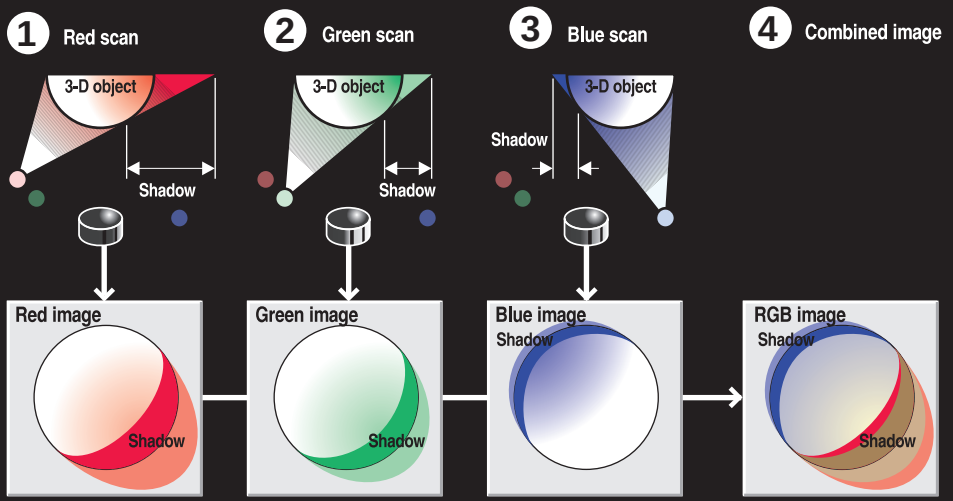
2 Green channel only scan

3 Full spectrum grayscale scan

Note the difference in the horses' collars and the red flower and heart.

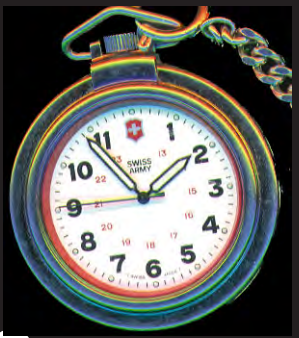


A test for color balance



a Single light, single exposure

b Single light, multiple exposure



c multiple lights, multiple exposure

Typical interpolation methods

1 Original image quality

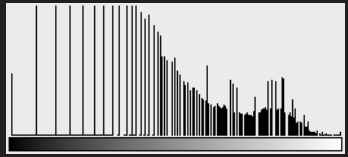
2 Low quality scaling

3 High quality scaling

Shadow detail

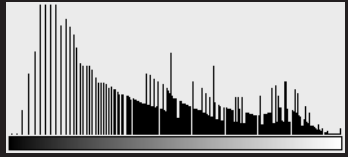
8-bit scan

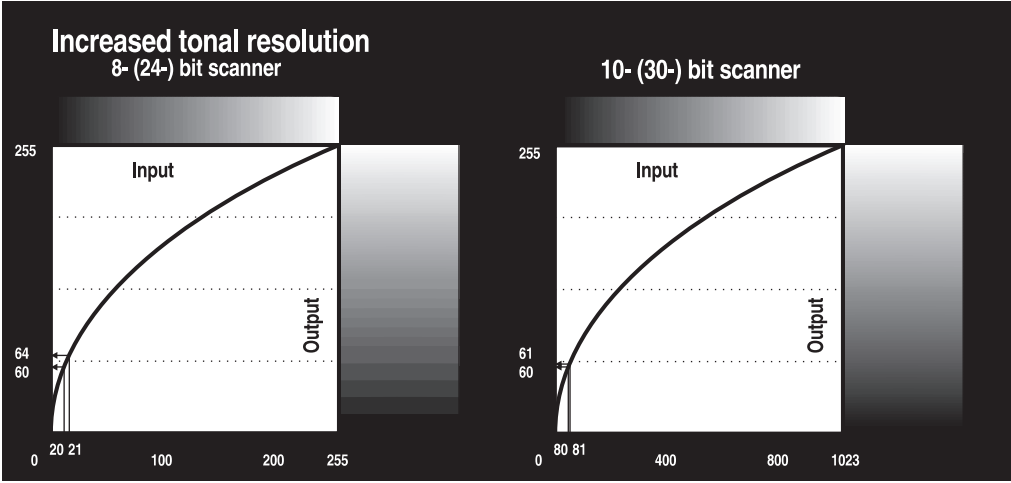
10-bit scan

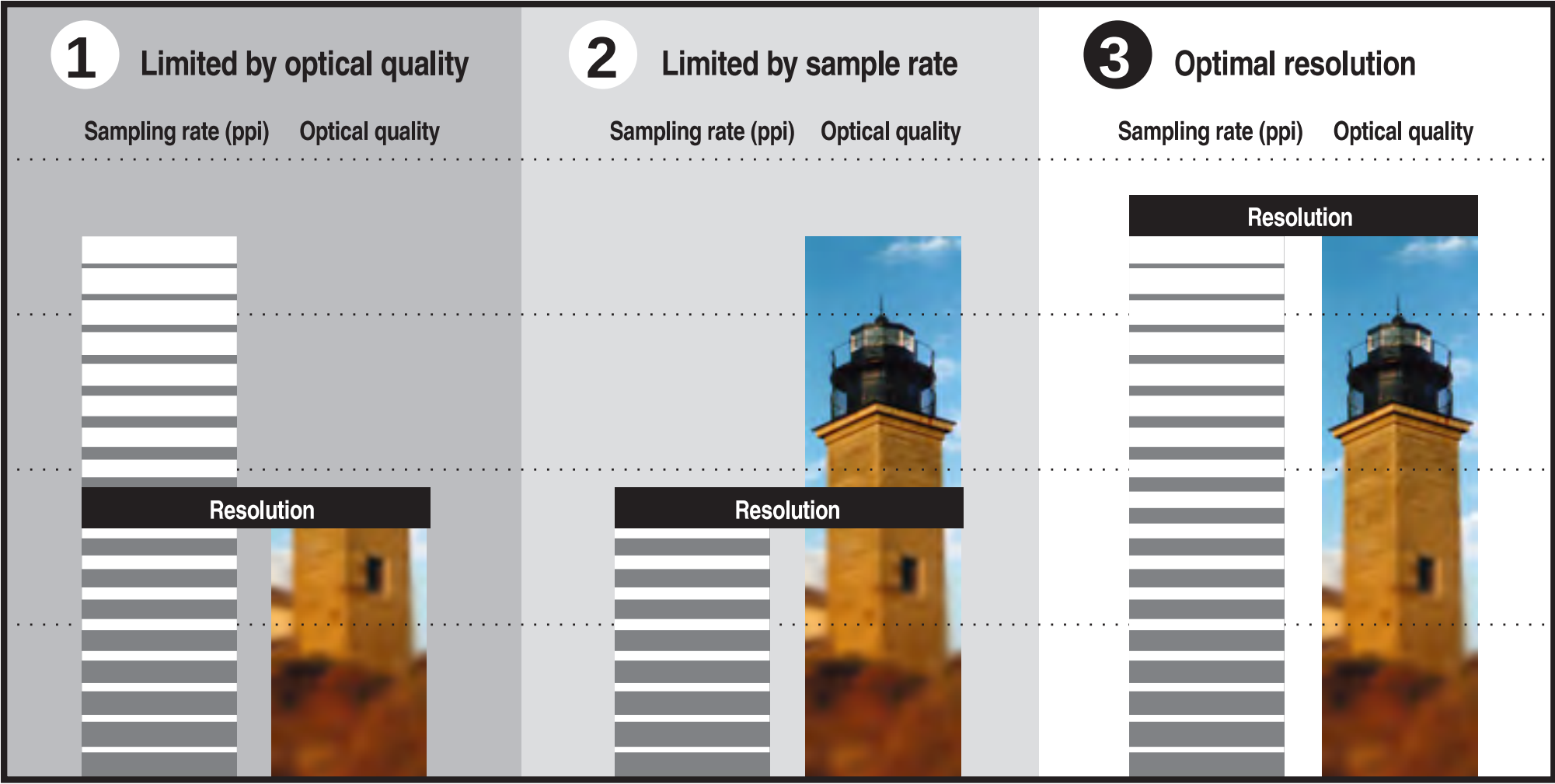


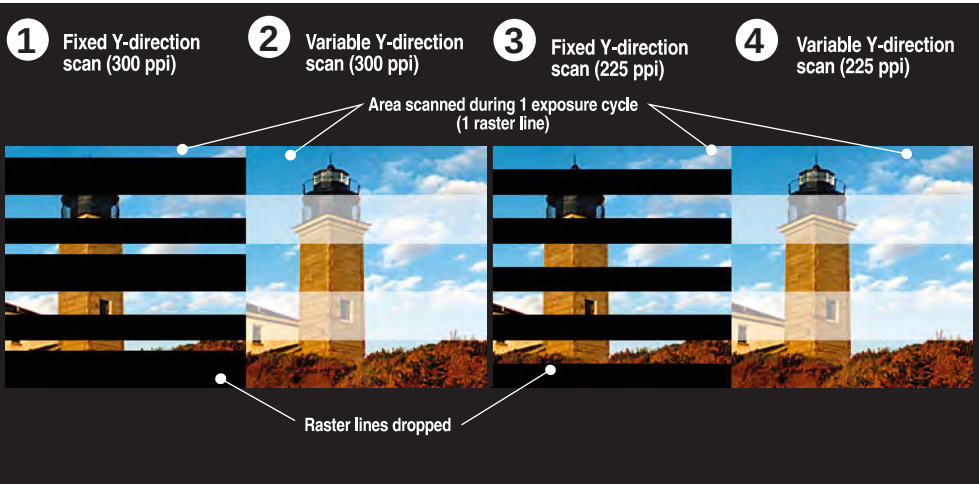
Histogram from the 8-bit scan

Histogram from the 10-bit scan




Increased tonal resolution
8- (24-) bit scanner
255
Input
Output
64
60
0
20 21
100
200
255
10- (30-) bit scanner
255
Input
Output
61
60
0
80 81
400
800
1023


1
Limited by optical quality
Sampling rate (ppi)
Optical quality
Resolution
2
Limited by sample rate
Sampling rate (ppi)
Optical quality
Resolution
3
Optimal resolution
Sampling rate (ppi)
Optical quality
Resolution


1
Fixed Y-direction scan (300 ppi)
2
Variable Y-direction scan (300 ppi)
3
Fixed Y-direction scan (225 ppi)
4
Variable Y-direction scan (225 ppi)
Area scanned during 1 exposure cycle (1 raster line)
Raster lines dropped