Duo tones

A practical guide from Potlatch.

Mountie

Duotones are simple.

They are black-and-white original images reproduced in two-colors.

Duotones are complex.

They may be created with any of three "traditional" duotone techniques or one of two "fake" duotones. Add color and you have a technique offering virtually limitless variety. There is, however, no common language that describes duotones. And, short of press proofing, there isn't even a standard duotone proofing method.

Doing duotones has never been easier.

Getting the duotone effect you want means a lot of guesswork and a bit of frustration. But, with computerized tools – such as Adobe® Photoshop® – exploring duotones and bringing them to press can be very simple.

We won't go into desktop programs here – fact is, these powerful tools are very approachable. To help make duotone effects as simple as possible for both digital artists and those using traditional approaches we pass along the following tips.

Communicate

Here's the best duotone advice: establish and maintain clear, open communication with everyone involved – creative professionals, production managers, printer reps and both scanner and press operators.

The Basics

Duotones are created by generating two halftones of the same image. By printing them three different ways – two blacks, black and a color, and two separate colors – three duotone effects may be achieved. And, beyond these traditional techniques "fake" duotones may be created by running a halftone over a solid or screened color.

Tonal Curves (Page 12)

You can create a duotone simply by running two halftones of one original; one in black or a color and a second color. Things get interesting when you adjust tonal curves to enhance highlights, soften midtones or open up shadows by adjusting densities in those areas. Moreover, through the solarization process you can invert the curve of one of the colors to achieve additional effects.

Two Color Duotones (Pages 6, 7, 10, 11, 14, 16, 18, 19)

This technique offers good detail and contrast in all areas while providing great reproduction control. There are two approaches:

Subtle Color (page 9)– Black dominates the color. The black printer is produced with 0% dot in highlights and a 100% dot in shadows. The color printer does not print in highlights, yielding a printable dot two or three steps up the gray scale. Midtones print normal or weak and shadows print normal.

Dominant Color (page 8)– Color dominates the image while black adds depth and detail. The black printer does not print in the highlights, midtones are normal or weak and shadows carry a 60% to 70% dot. The color printer prints a 5% dot in the highlights and a 80% dot in shadows.

Double-Dot Duotones (Pages 13, 17)

When printing a one-pass halftone, density will drop about 20%. By printing the same color twice, in a double-dot duotone, you can recapture detail and density, virtually matching originals. These duotones are created by making one negative with dot in highlight areas. The second negative is made without dot in the highlights and picks up a printable dot at about 33% of the midtone range. Shadows maintain a 90% to 95% dot.

Fake Duotone – Solid Color

This technique, in which a halftone is run over a solid color, is the most basic duotone. The approach can add impact to high-contrast photos, promoting details that start in the midtones and work toward muted highlights. It tends to lose detail in shadows and mutes the overall appearance.

Fake Duotone – Screened Color (Page 15)

In this technique a standard halftone is printed over a screened color block. Some detail and sharpness will be lost, but overall the image will be sharper than a solid-color fake duotone.

Choosing Photography

Good duotones begin with good photography. If you start with images with a broad range of tonal value and detail, you will have more flexibility to adjust screen densities and tonal range. Duotones can also make a poor-quality image more interesting.

Digital Systems

Many of the difficulties of creating duotones are rooted in communication. Those problems have been minimized by digital systems which allow manipulation of screen densities, tonal curves and color. Practiced operators can create press-ready files with the precise duotone effects they want. And, you can experiment with duotone effects to create color output to closely match the desired effect.

Because color can be highly subjective, duotone communication can be improved with clear reference points. When desktop systems are available, low-resolution images offering approximations of the duotone effect give printers and creative professionals a common reference point. When such systems are not available, it pays to find printed duotone examples close to what you want, such as in this guide book.

Proofing

Standard proofing systems replicate conventional process color and, while they can be coaxed into simulating matched duotone colors, those proofs are, at best, approximations. As a result, press proofing is the only accurate way to proof duotones.

Paper

Duotones depend on accurate dot reproduction; quality suffers with too much dot gain or loss. Printers can best advise on the dot gain or loss characteristics of their equipment, but when it comes to paper you have clear choices. Quality coated printing papers, such as Mountie from Potlatch, deliver superior ink hold-out, assuring a minimum of dot gain and reproduction of subtle detail. It is that detail which gives duotones intriguing depth and engaging tonal variation.

Troubleshooting Duotones

Duotones demand careful control of a wide range of variables such as ink colors, screen densities and angles, color dominance, and the compression or extension of density range. Color strength must be a primary consideration. You must determine how much color is required and some trial and error work compressing or extending density ranges may be required at the desktop, in pre-press and during proofing.

By compressing the range toward the blacks, you will increase contrast and enhance important details. This technique opens highlights and deepens shadows by eliminating smaller halftone dots and fine detail may be lost. If such detail is important, you may wish to compress one color and extend the other to allow, for example, the black printer to carry the shadows while the color printer carries the detail.

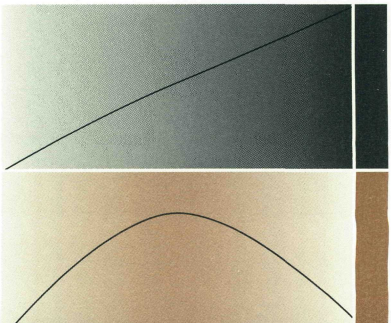
During the press makeready, subtle adjustments can be made to further enhance your duotone. At this time, ink densities can be adjusted to create the ultimate effect. Makereadies will show how flexible duotones can be.

Density Range Reference

Listed below each image are the density ranges accompanied by a color block with curve, which visually simulates the colors in the duotone. These communicate how the two work together.

Two Color Duotones

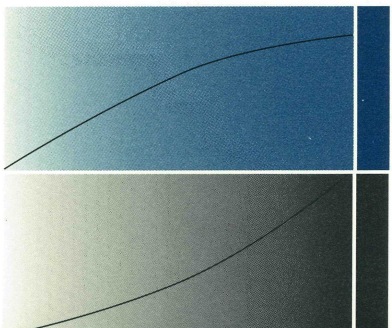
Here are two demonstrations on the range of effects you can achieve with basic duotones. The grace and human vulnerability of the actress statue are complemented by the warmth of this black and match metallic duotone.



Black over match metallic

Density range: Black: 0% to 100%, Midtone 55%
Match metallic: 0% to 10%, Midtone 75%

On the other hand, by adjusting the tonal curves, a powerful dark blue is concentrated in the midtone and shadow range of this officer to help anchor his bold stance.

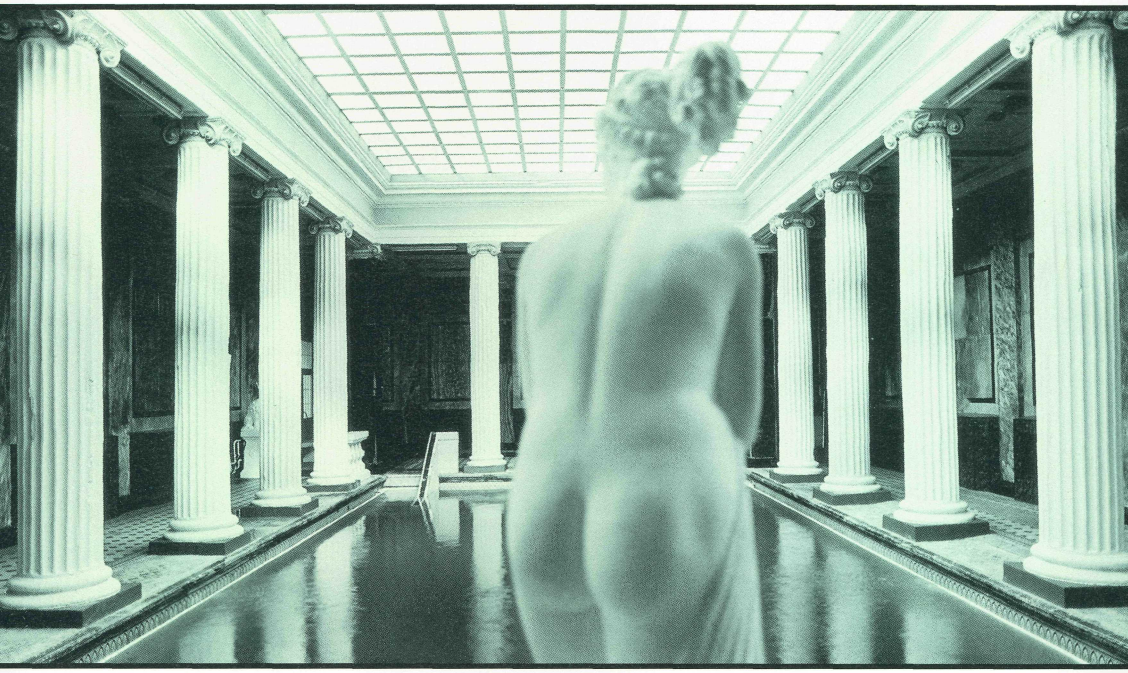


Match blue over black
with adjusted curves

Density range: Match blue: 3% to 80%, Midtone 57%
Black: 0% to 100%, Midtone 33%

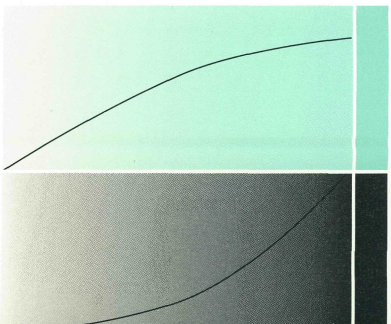
Shifting Dominance

The diffused light of this image gives it an open, airy feel, but through this comparison of the dominant-color treatment on the left to the subtle-

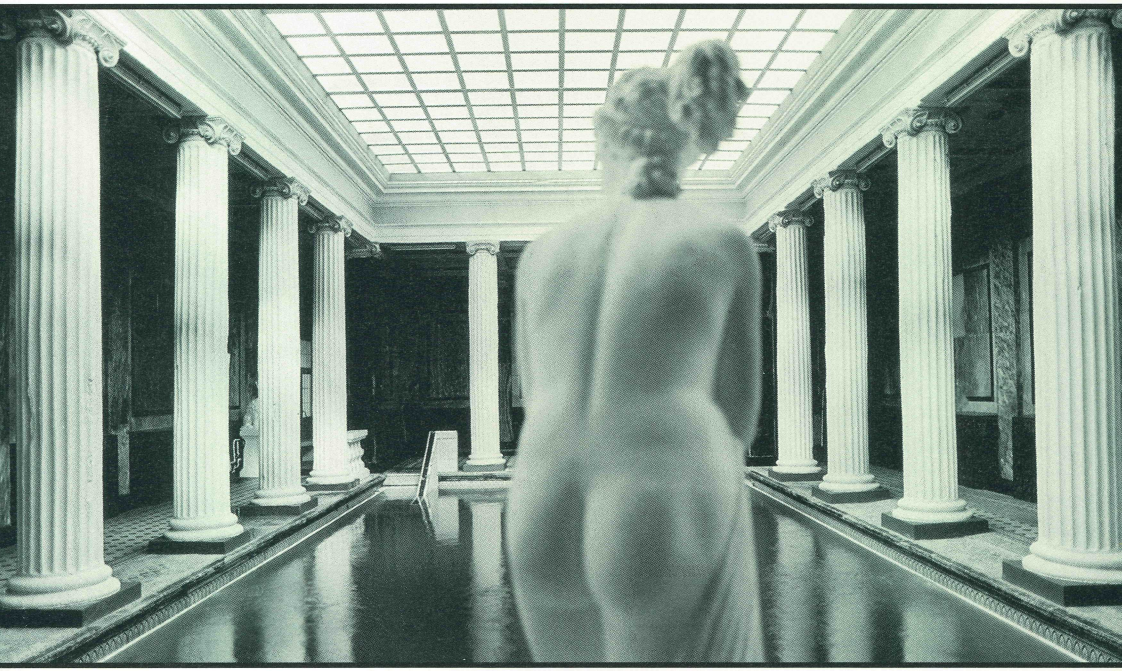


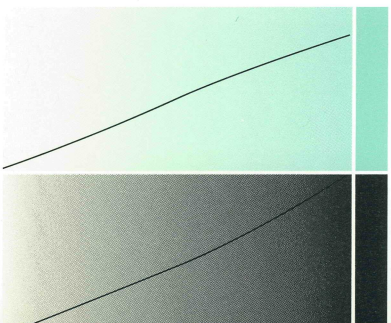
Color dominant with
match green over process black

Density range: Match green: 5% to 80%, Midtone 58%
Black: 0% to 100%, Midtone 20%



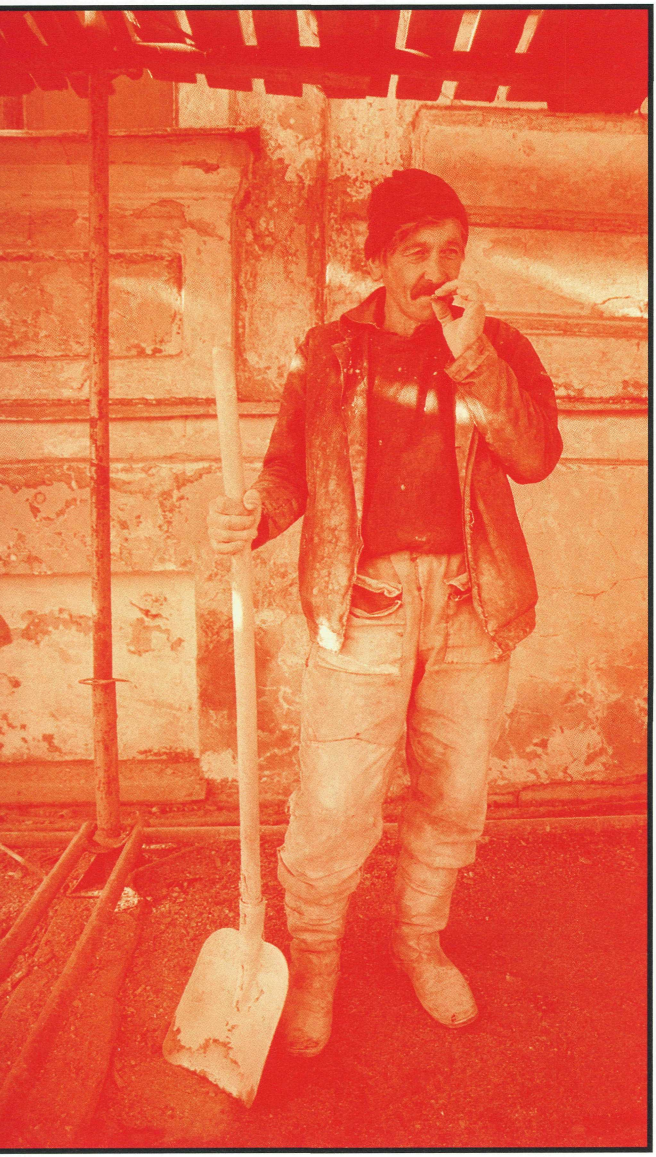
color treatment on the right with using a combination of process black and match green, you can see how the moods shift.





Black dominant with
match green over process black

Density range: Match green: 0% to 80%, Midtone 40%
Black: 0% to 100%, Midtone 40%

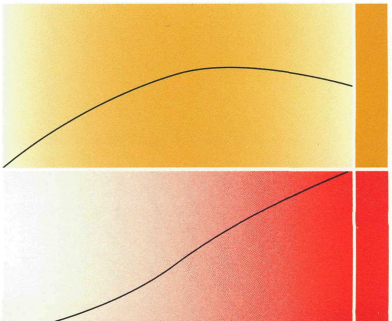


Grit

This gritty image is energized and brought to the edge of true color by printing it as a two color duotone using a yellow over red.

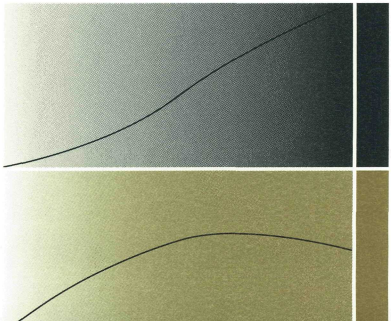
Match yellow over match red

Density range: Match yellow: 0% to 50%, Midtone 60%
Match red: 0% to 100%, Midtone 40%



Nostalgia

Although deserted at present and emptied of nobility, past grandure appear reawakened in this process black and match metallic gold duotone. The addition of a digital grain filter in the computer enhances the longing mood.



Black with digital grain filter and adjusted curves over match metallic gold

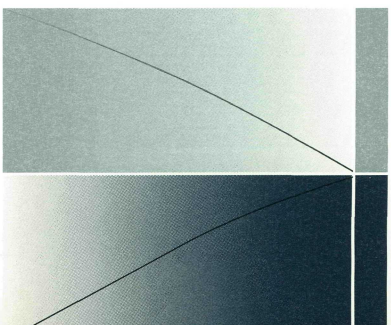
Density range: Black: 0% to 100%, Midtone 40%
Match metallic: 0% to 50%, Midtone 60%

Substance

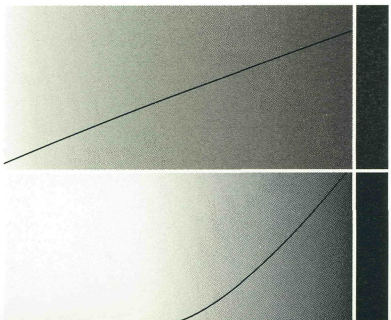
Duotones help you find what is already there in many images. The match metallic silver and match blue solarized duotone on the left takes on a surreal quality through solarization of the blue halftone.

Match metallic silver over match blue solarized

Density range: Match metallic: 100% to 0%, Midtone 60%
Match blue: 0% to 100%, Midtone 60%



The rich detail of the train platform on the right, which might be lost in a standard halftone, is reinforced by applying a special black and process black double-dot duotone technique.



Special black over process black

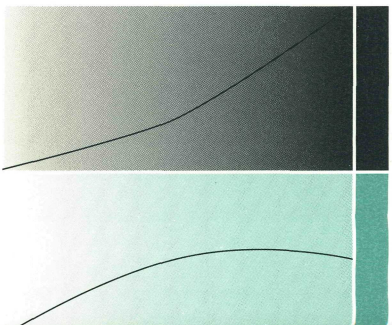
Density range: Special black: 0% to 80%, Midtone 40%
Process black: 0% to 100%, Midtone 10%

Illusions

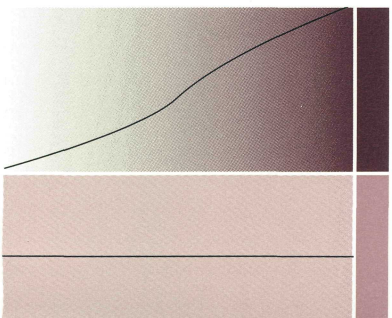
Quirky images abound in a land where illusions of both the past and future define the landscape. The gloom of a failed present is reinforced in the black over metallic

Black over match metallic green

Density range: Black: 0% to 100%, Midtone 30%
Match metallic: 0% to 60%, Midtone 47%



green two color duotone on the left while the match dark red dominant and match red fake duotone underscores the absurd theater of the past on the right.

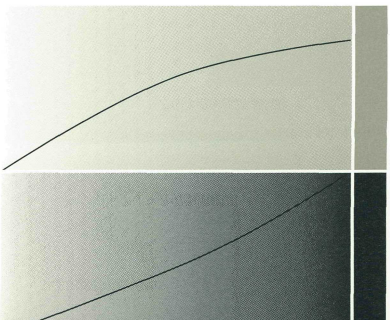


Fake duotone
Match dark red over match red

Density range: Match dark red: 0% to 100%, Midtone 45%
Match red: 50% to 50%, Midtone 50%

Solid

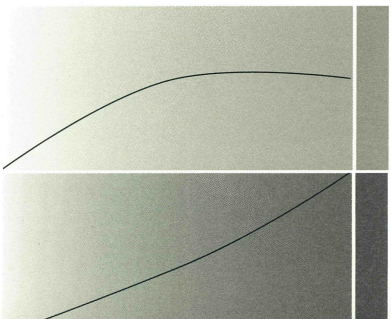
A combination of match gray over black explores and reinforces the depth, detail and solidity of the image on the left.



Match gray over black

Density range: Match gray: 5% to 80%, Midtone 57%
Black: 0% to 100%, Midtone 40%

Conversely, the light gray over a match gray of the double-dot duotone on the right enhances the narrow tonal range and detail to help transform routine into aspiration.

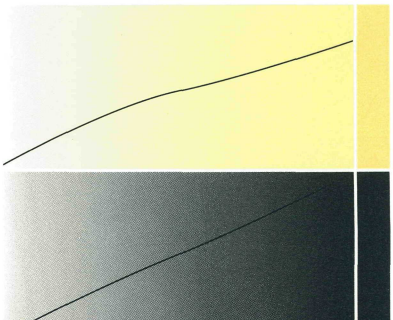


Match light gray over match gray

Density range: Match light gray: 0% to 60%, Midtone 55%
Match gray: 0% to 100%, Midtone 45%

Light

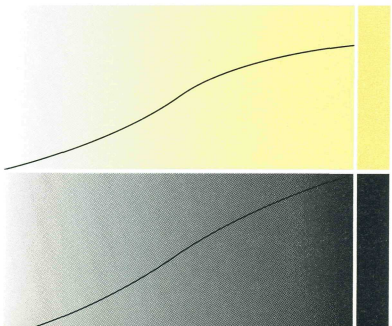
Light, with all of its subtle nuance, offers an intriguing playing field on which to explore how seemingly subtle color changes can have dramatic impact on duotone images.



Match yellow over process black

Density range: Match yellow: 3% to 80%, Midtone 45%
Black: 0% to 100%, Midtone 50%

Compare. The brightness and contrast adjustments have been applied to the two color duotone image here. Both are reproduced in match yellow as the first color and process black.



Match yellow over process black with a brightness push of +10 and contrast push of +10

Density range: Match yellow: 3% to 80%, Midtone 45%
Black: 0% to 100%, Midtone 50%

Mountie

Mountie® from Potlatch delivers an unmatched blend of dependable on-press performance and economy – a perfect match for the ease and economy of duotones. Available in white and natural shades, matte-finished Mountie offers a subtle yet distinct, invitingly tactile feel, that provides exceptional print quality. Its bright, smooth and even surface delivers the reflectance, contrast and the ink hold-out you need for clean, crisp halftone reproduction. With Mountie, you get clean accurate color and the precise detail you need for subtle tonal shifts in both highlights and shadows.

Above all, Mountie is reliable, proven, a quality coated printing paper you can count on run after run, on press and through bindery. Precisely what you expect from Potlatch.

Mountie White is available in 60, 70, 80 and 100 lb. text and in a 105 lb. return card, which meets 7 point postal requirements. A 65 and 80 lb. cover makes this line of paper one of the most versatile in the industry.

Mountie Natural is available in 70, 80 and 100 lb. text, 105 lb. return card (also 7 point), and 80 lb. cover. Both Mountie White and Natural are recycled containing a minimum 10% post-consumer recycled fiber.

Production Notes

Paper:
Mountie White 80 lb. cover and 100 lb. text

Duotones:

Page 6	Actress Statue: Metallic duotone, Black over match metallic
Page 7	Officer Statue: Color dominant duotone, Match blue over black
Page 8	Statue: Color dominant duotone, Match green over black
Page 9	Statue: Black dominant duotone, Black over match green
Page 10	Man with Shovel: Color on color duotone: Match yellow over match red
Page 11	Stairwell: Metallic duotone with filter, Black over match metallic gold
Page 12	Train: Solarized duotone, Match metallic silver over match blue solarized
Page 13	Train Station: Special black over process black duotone, special black over black
Page 14	Car: Black dominant duotone, Black over match metallic green
Page 15	Two Men on Bus: Fake duotone, Match dark red over match red
Page 16	Older Couple: Two color duotone, Match gray over black
Page 17	Man with Bag: Double-dot duotone, Match light gray over match gray
Page 18	Woman on Chair: Two color duotone, Match yellow over black
Page 19	Chair: Two color duotone with brightness push, Brightness +10 contrast +10, Match yellow over black

Color correction/retouching/manipulation:
Adobe® Photoshop®

Separations:
Original transparencies scanned 175 line on an SG-747 digital laser scanner with Scitex and PostScript interfaces.

Proofing:
Kodak Approval® proofing system to simulate duotone techniques and Fuji Color Art® analog proofs.

Presses:
Printed on a Mitsubishi 28" x 40" eight-color press and a Heidelberg 28" x 40" six-color press.

Plates:
Fuji

Credits

Photos:
The recipient of numerous advertising industry awards for his documentary-like photographs of people and animals, Minnesota-based photographer Craig Perman has also earned recognition for personal photo essays shot in the Far East, Caribbean, Europe, Africa and Mexico. These photographs were completed with the assistance of art director Warren Johnson in Moscow and St. Petersburg in the fall of 1998.

Craig Perman, 1645 Hennepin Avenue, Minneapolis, MN 55403
612-338-7727

Fonts:
Opti Aurora Bold & Bold Condensed and Frutiger

Concept, copy and design:
Kuester Partners, Inc., Minneapolis, MN

Technical Assistance:
Diversified Graphics Incorporated, Minneapolis, MN

Potlatch Promise

Our paper is 100% guaranteed. If, for any reason, you are not satisfied with the press performance of our product, we will replace it. No excuses. No fine print. No hassle.

Potlatch Service

To contact a Potlatch sales representative call 1-800-447-2133
A Graphic Arts Helpline for print-related questions. 1-800-832-8966
Visit Potlatch on the web at www.potlatchpaper.com

Mountie is manufactured with a minimum of 10% post-consumer fiber