20 Understanding and Working with Pixel-Based Images

Because people seldom photograph an object or a scene with exactly the elements they want in a composition, the field of retouching has thrived since the day a professional had something to sell using a photograph! This is why professionals trim photographs, and so can you, using the CorelDRAW features covered in this chapter. As objects, photographic areas that have been carefully cut out can be composited with other photos and vector shapes to add a whole new dimension to your posters, flyers, and fine art. Additionally in this chapter, Corel PowerTRACE, part of CorelDRAW, is demonstrated; you'll learn how to create a vector copy of a bitmap so you can scale and rotate it, edit it, and never lose details or resolution as bitmap images are prone to do.

Note Download and extract all the files from the Chapter20.zip archive to follow the tutorials in this chapter.

Cropping a Placed Photograph

You can perform two types of cropping on placed photos: destructive (permanent) and nondestructive (you can undo what you've done). The Crop tool on the Toolbox performs destructive cropping. Unless you press CTRL-Z to undo a crop you don't like, you're stuck with your crop, and no exterior areas beyond the cropped image remain that you can expose later. With bitmaps, you need to import them (CTRL-I); you cannot File | Open a bitmap image. Cropping a photo involves several steps:

1. You define the area you want to crop by click-diagonal-dragging the Crop tool from one corner to the opposite corner.
2. You can redefine the crop by click-dragging the resulting bounding-box markers. The corner markers scale the proposed crop area proportionately, whereas the center

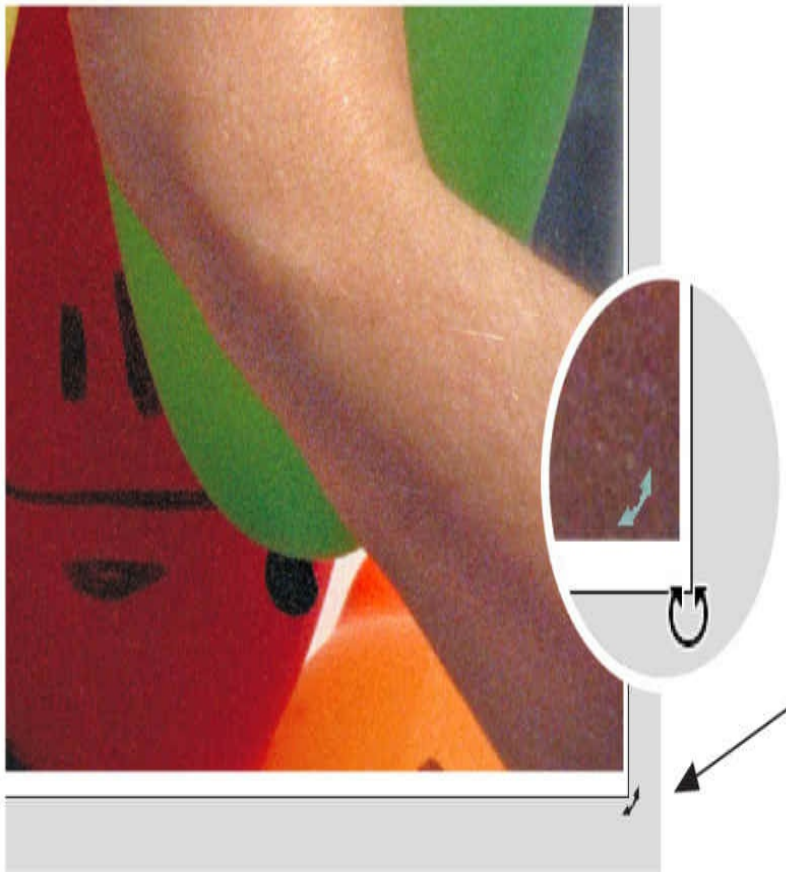
markers are used to resize the proposed crop area disproportionately.

3. You can rotate the crop box, if, for example, you need to straighten a horizon. To do this, make a crop and then click inside the crop to put it into Rotate mode. You then drag on a corner double-headed arrow marker to rotate the crop. This doesn't rotate the photo itself, but rather the crop area.
4. You double-click inside the crop area to finish the crop. Figure 20-1 shows the elements you work with onscreen to crop a bitmap image.

Click-drag

Scale crop box disproportionately

Scale crop box proportionately



Rotate crop box. Click selected photo first to reveal rotation handles.

FIGURE 20-1 **The Crop tool eliminates the exterior image areas of your defined crop area.**

If you'd like to use the photo the author used in these figures, you can find Unlucky balloon.png in the ZIP archive.

Note To see the resolution of a placed bitmap image quickly, with the bitmap selected, look at the Status Bar, which names the file as well as tells you its color mode and current resolution. The rule is, as you increase bitmap dimensions, resolution decreases proportionately.

Nondestructive Cropping

In a nutshell, if you want to hide an area of a photo and not delete it as you do with the Crop tool, you use the Shape tool. Try this out with the Small apple1882_0435.jpg image by following the steps here.

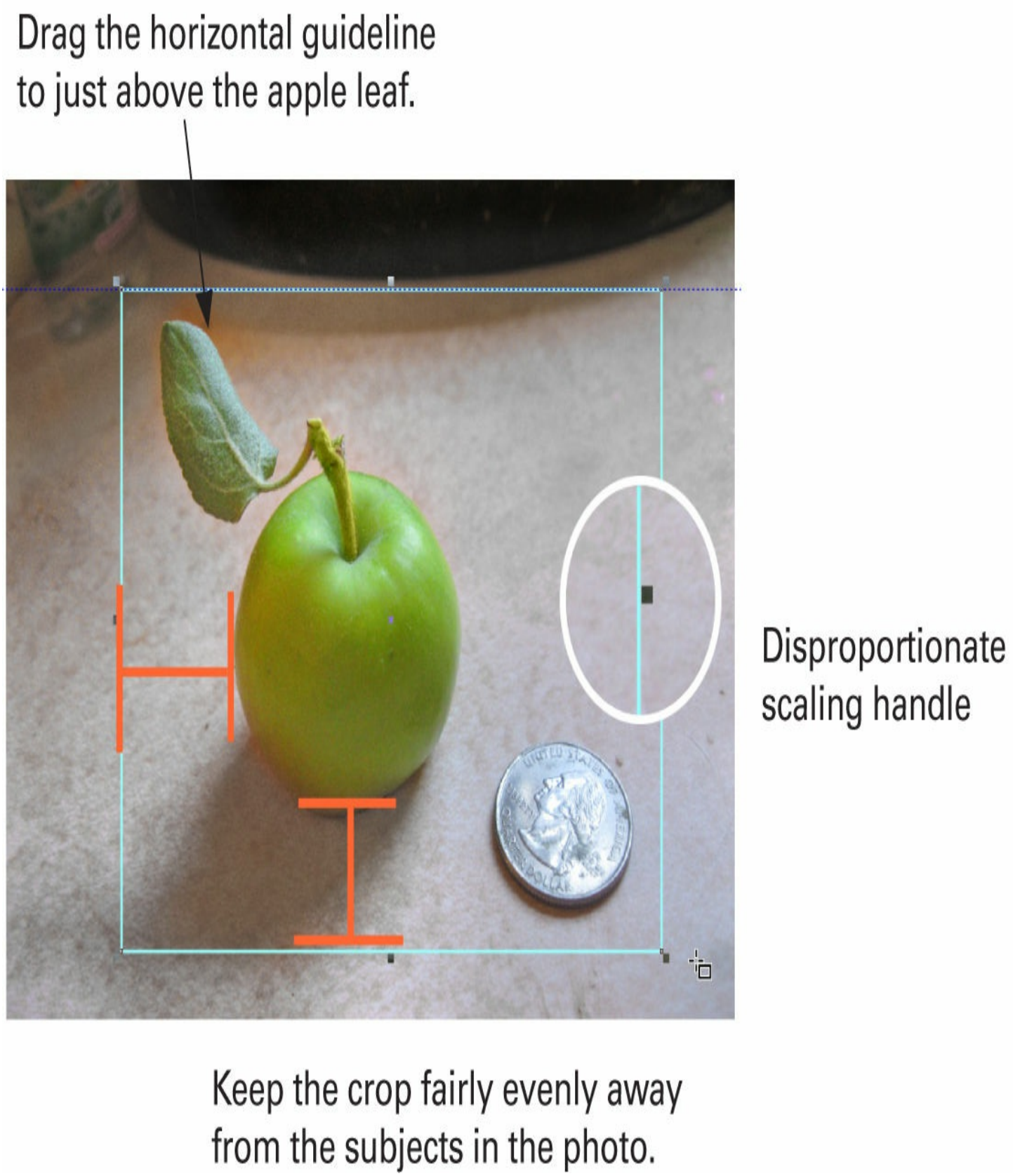
Using the Shape Tool to Crop

Tutorial

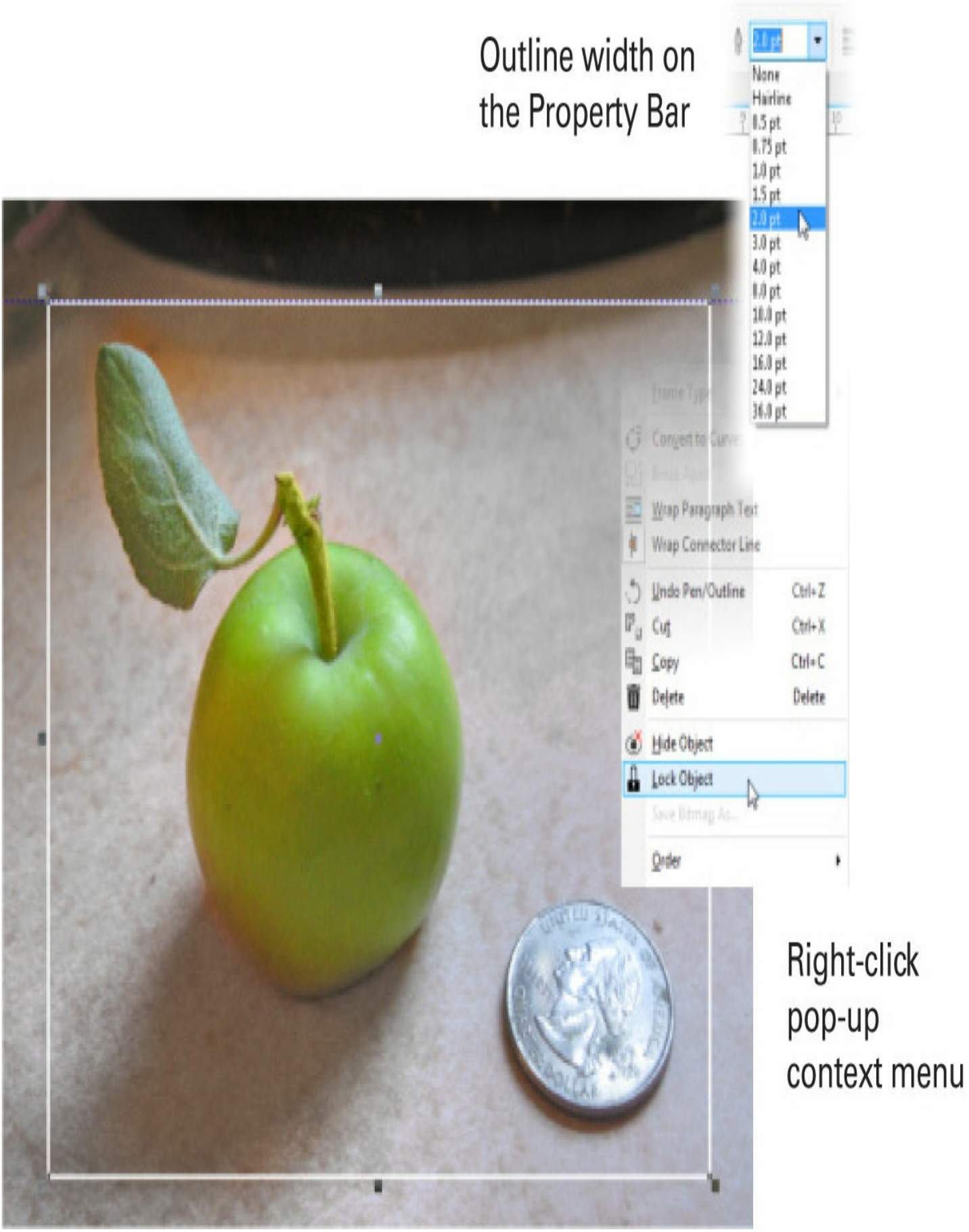
1. Create a new (default-sized) document with landscape orientation. Place the image Small apple1882_0435.jpg in a new document by clicking the Import button on the Property Bar and then selecting the image from the location you downloaded it to. With the loaded cursor, click-diagonal-drag to place the image so it fills most of the page.
2. The crop you'll perform is to remove the distractions from the very top of the photo. Drag a horizontal guide to above the leaf on the apple, leaving just a little room without going into the shadow area.
3. From the Standard Bar, choose Snap To | Guidelines. With the Rectangle tool, begin click-dragging at the horizontal guide. Begin the click-drag to the left of the apple, but not so far to the right that it spoils the composition after you crop. Judge how far you will crop on top, and then click-drag from top to bottom left to define the crop on the left of the photo. You should stop dragging just about at the end of the apple's shadow. Peek ahead to the following illustration to get an idea of how to create the rectangle

around the photo.

4. Drag a little down and to the right to create the bottom and right guides for dropping out of your rectangle. Like with the left edge, leave just enough space on the right side to balance your future crop with the other three sides of the rectangle.



5. Give the rectangle a white outline while it is selected by right-clicking on the white color well on the color palette and then give it a 2-point outline using the num box on the Property Bar, just so you can see the rectangle when you edit the underlying photo. Right-click over the rectangle and then choose Lock Object from the pop-up context menu; see the next illustration.



6. Choose the Shape tool from the Toolbox and then click on the photo to select it. The

photo now has control node markers at each corner. These markers behave and operate exactly like control nodes on vector shapes.

7. Select one corner node of the photo and then drag it to the corresponding corner of the white rectangle, as shown in the illustration here. Like magic, the corner node of the photo magnetically aligns itself precisely with the corner of the rectangle. This is because the Snap To option is set to Guidelines (all four corners, in fact).

8. You're home free! Click-drag the remaining three corners to their corresponding positions around the rectangle. You can unlock and delete the rectangle now, and you have a clean, expertly executed, nondestructive crop. At any time, you can take the Shape tool and drag the image's four corner nodes way out until the original image is visible.

Masking Through Nondestructive Cropping

Go to the head of the class if you've already discovered that you can *add* control nodes to a placed photograph with the Shape tool! CorelDRAW "sees" a bitmap as an object that has a fill—specifically a bitmap fill. Therefore, this object can be shaped and reshaped by adding nodes and also by changing the segment property between nodes. The following sections take you through some advanced bitmap editing to trim around a photograph so it becomes a floating object in a composition.

Trimming Away Unwanted Image Areas

What you'll learn in this section goes way beyond the simple cropping of an image. You're going to trim the background away from an image of a trendy wristwatch, add a photographic element, put a new background behind the watch, and by the end of this section, you'll have designed a print advertisement. There are two nondestructive methods for removing the background from a photo's subject, and both techniques are described in this section. The elements of the poster have already been created for you, and shortly you'll see how to make a design with elements in front of and behind each other, just like you do with vector shapes, but using *photographs*.

To begin this design, you need to create a new document (portrait orientation, default page size) and import the image of the watch—a little smaller than the page size, but it can be scaled at a later time when needed. Then you use the Shape tool to trim the background.

Background Removal, Technique 1

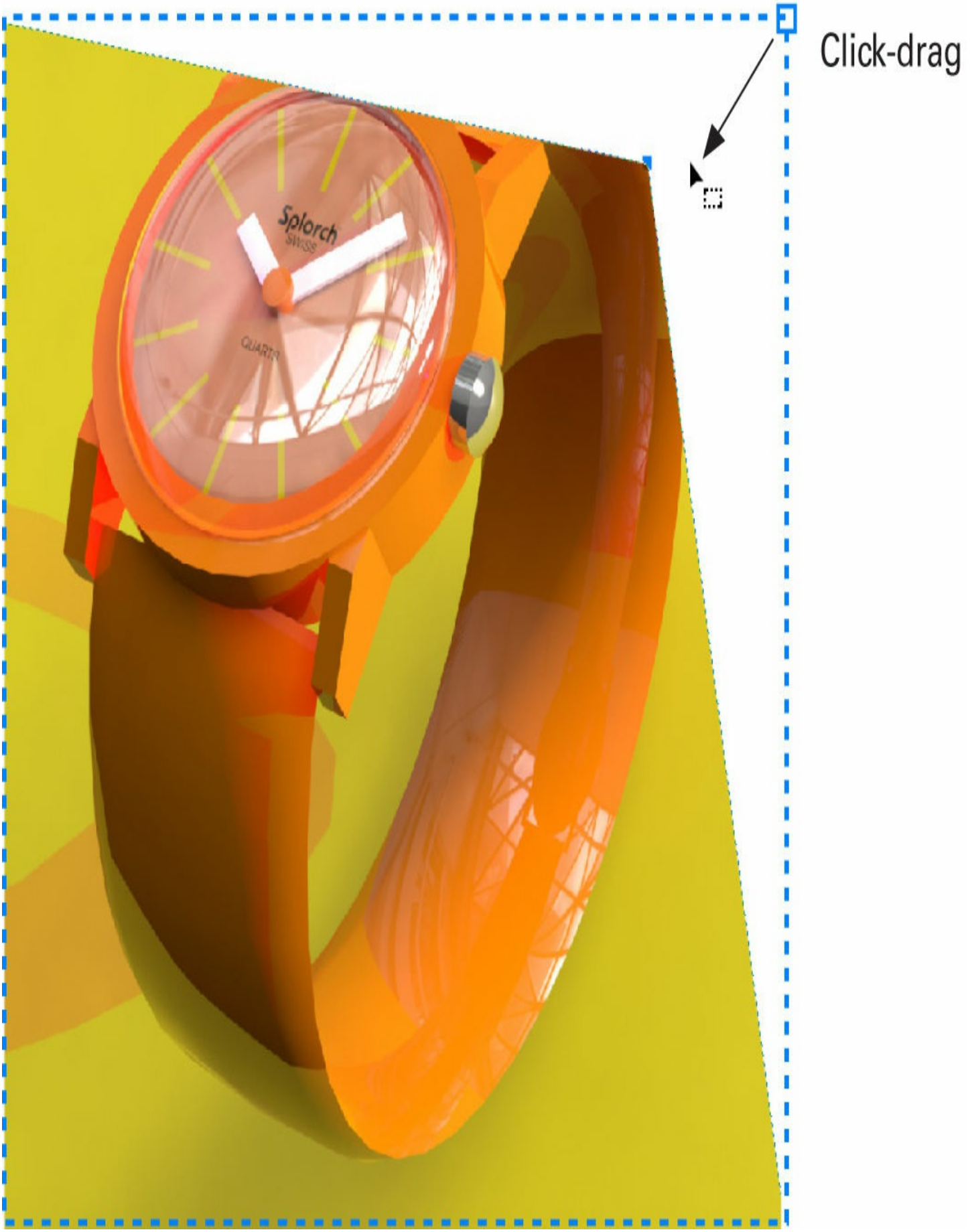
Tutorial

1. Click the Import button on the Property Bar, and then in the Import dialog, locate Splorch watch.png, choose it (over other brands), and then click Import.
2. Your cursor is loaded with the image: click-drag, and then release the mouse when the cursor reports that the width for the placed image is about 8 ½ inches.

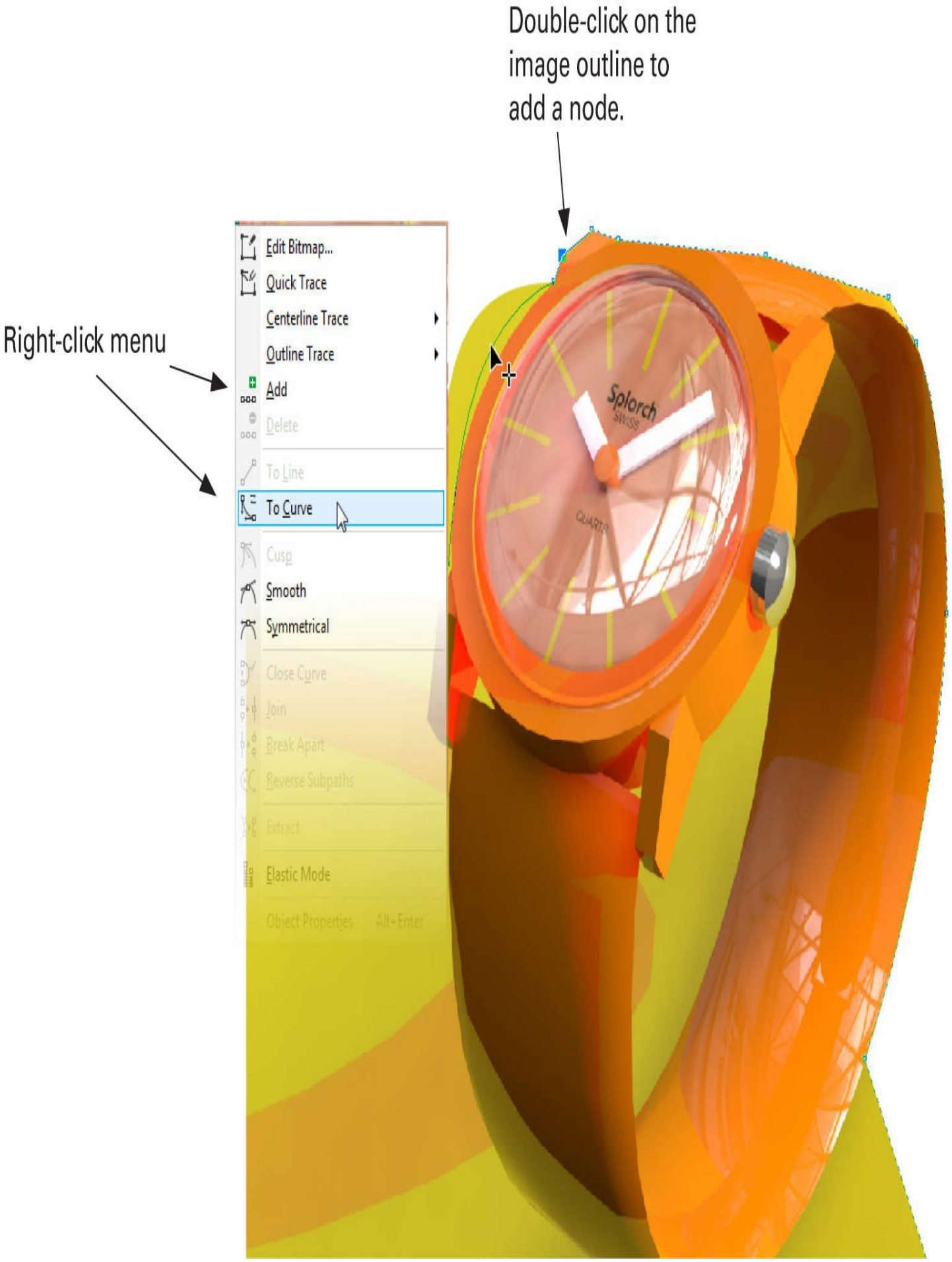
Click-diagonal-drag to size and place.

ploreh watch.cpt
w: 8.351 in, h: 8.063 in

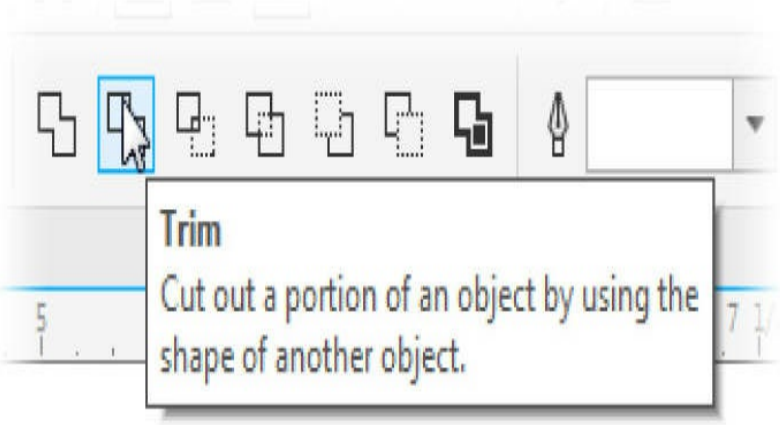
3. Let's suppose that the ideal size for the picture should be 8 ½, but you didn't get the placement precisely at this size. No problem: with the Pick tool chosen, type **8.5** in the width field of the Object size box on the Property Bar and then press ENTER. Check the Document Grid box in the Snap To drop-down (on the Property Bar) and then use the Pick tool to precisely align the photo to the top center of the page.
4. Now that your photo is perfectly aligned for this mock composition, your mock boss tells you that he doesn't like the background. He wants to know if you can remove the background and put in a new one. And he also tells you that your answer should be "yes." The solution to your dilemma here begins with the following sentence. Choose the Shape tool. Begin by clicking the top-right node of the image, and then click-drag it toward the center of the image until the top and right edges touch the elegant wristband, as shown next. Clearly, you're not going to get where you want to go with only four control nodes because the geometry of the watch is far from perfectly rectangular. This is okay; you'll add nodes to the outline of the image in the following step. Oh, and turn off Snap To | Document Grid now; you've done enough snapping for today.


Click-drag
Splorch
Swiss
QUARTZ

5. With the Shape tool, click a point on the outline of the photo where you want to change the direction of the line; near the upper-right corner of the photo is a good place to begin. Now, either double-click the segment, press the keyboard plus (+) key, or click the Add Node button on the Property Bar to add a node. While you're in the vicinity of the top of the watch, several additional points are needed. A quick way to add points in between existing points is to click a point repeatedly and press the + key.
6. Click-drag points so they visually coincide with the vertices of the curves on the fashionable wristband. It's okay if the lines between the nodes hide areas you want exposed. You'll want to frequently move a segment back and forth to see where the edge of the watch lies.
7. Click a straight line segment that should curve away from the photo. Then click the To Curve button on the Property Bar. The segment can now curve; click-drag the segment away from the photo, as shown next, until the red watch edge is apparent but the hideous muckish-colored background is not. You can also right-click a segment and choose To Curve from the pop-up menu.

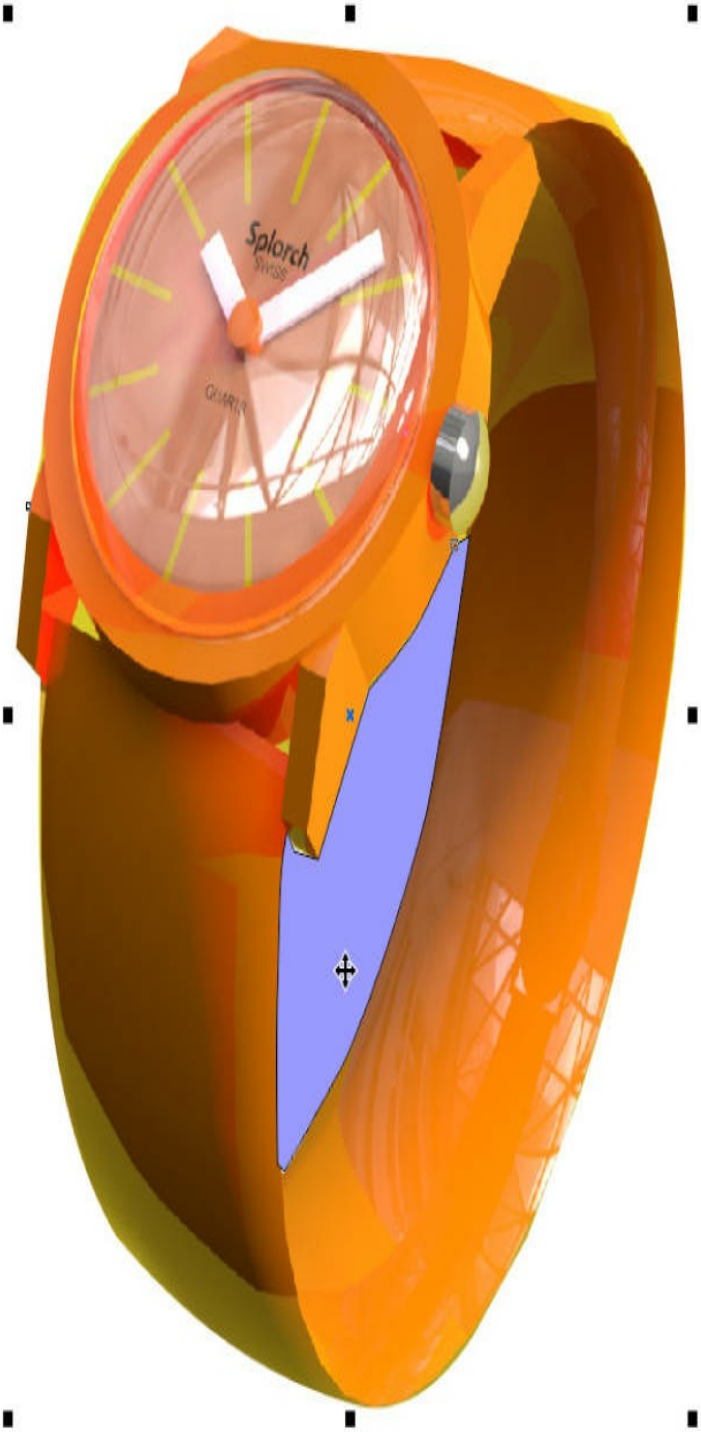

Double-click on the image outline to add a node.
Right-click menu
Edit Bitmap...
Quick Trace
Centerline Trace
Outline Trace
Add
Delete
To Line
To Curve
Cusp
Smooth
Symmetrical
Close Curve
Join
Break Apart
Reverse Subpaths
Extract
Elastic Mode
Object Properties Alt+Enter
Splorch
SWISS
QUARTZ

8. Once the outside of the watch has been manually masked, it's time to create a hole for the interior background white color, to remove it to a transparent state, exactly like the outside silhouette of the watch. Choose a line drawing tool; the Pen tool is fine for this example.
9. Set the View to Wireframe. You'll see a grayscale image of the watch, plus all the segments you draw are easy to see in this view. Why didn't you use this technique from the beginning, and why are you looking at the author that way? To show you more than one way to accomplish a task, of course. Some techniques work better than others, while some don't work at all. It depends on the photo, and like snowflakes and the washers you have in a jar in your workroom, no two are alike.
0. Trace along the edge of the wristband, as shown in the following illustration. With the Pen tool, the pattern of mouse gestures is to click-drag to create a curve segment, and just click to create a node that you decide will be the anchor for a curved or a straight segment.



Shape and watch selected

Pen tool and the interior shape



11. Fill the selected inner shape with any color so it can be easily selected.
12. With both objects selected, click Trim on the Property Bar. By default, this will remove the path you drew, but the path is not deleted in the Merge mode. With the Pick tool, click the colored path and then press DELETE.
13. That's it; all it takes now is about 10 minutes of your time to work around the profile of the wristwatch, hiding areas and creating curve segments where needed. Yes, it's a lot of work, but so is putting on a tuxedo or gown to go and collect an industry award for outstanding design work (*prompt, hint, encouragement!*).

A good thing to do once you've trimmed away the nonessential watch parts, because the default color of the page is white, is to put a colored vector shape behind the composition to check your edge work. Make a rectangle, fill it with a dark color, and then press SHIFT-PAGE DOWN to put the rectangle to the back.

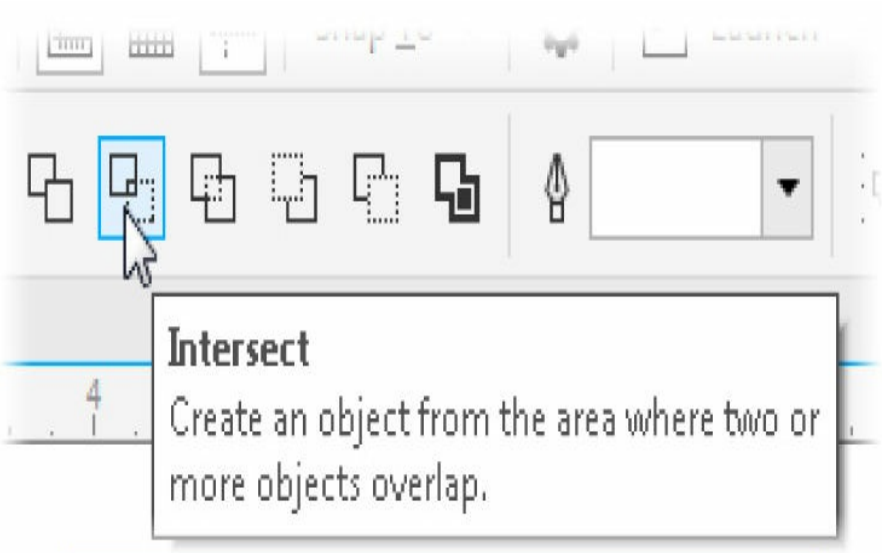
If you'd like to confirm the fact that the editing you performed is nondestructive, take the Shape tool and marquee-select several control nodes. Then drag them away from the center of the photo, as shown here. Then press CTRL-Z to undo this nondestructive *and unwanted* edit!

Background Removal, Technique 2

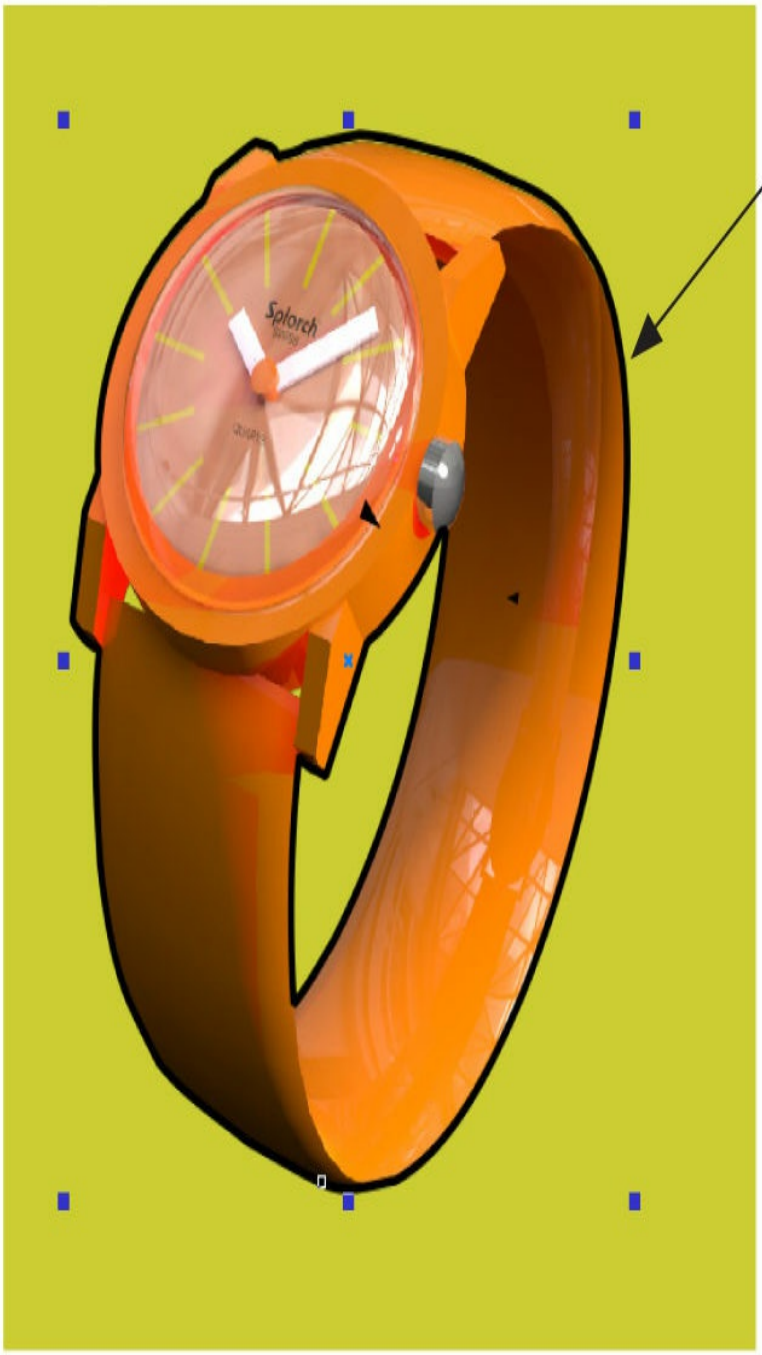
Tutorial

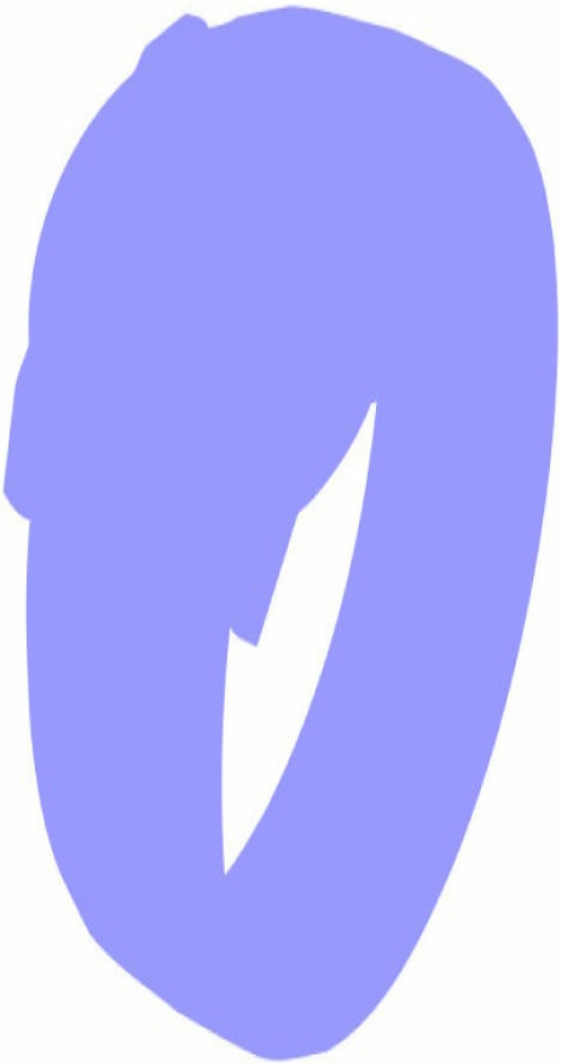
There's no need for a step-by-step tutorial to explain the two other techniques for putting a mask around an imported bitmap. Running through short steps is not the way to our goal here, which is to create an ad for Splorch watches—which I've already designed for you so you only need concentrate on the elements of the design.

The second way you can isolate a foreground element from the background of a photo is to trace closely around the silhouette of the shape and then select both your closed path and the photo. Finally, you choose Intersect from the Property Bar, as shown next.



Path is silhouette of watch.





Background Removal, Last Technique!

In Chapter 9, we covered CorelDRAW's PowerClip feature. This masking technique is nondestructive, and a masked shape can be a vector object, vector group, or an imported bitmap. In Figure 20-2, you can see a small copy of the original image as imported with its "horrendous background," as your mock boss says. I've already masked this shape for you, and it's in the Splorch full page ad.cdr document, waiting for you to open it. To isolate the foreground "doodad," you carefully trace over the doodad (locking the photo is a great idea before you begin), unlock the photo after you've traced the outline, and with the photo still selected, choose Object | PowerClip | Place Inside Frame. With the special PowerClip arrow cursor, you click the outline drawing, and the photo then peeks out from inside the outline you drew. Again, see Chapter 9 for PowerClip details.

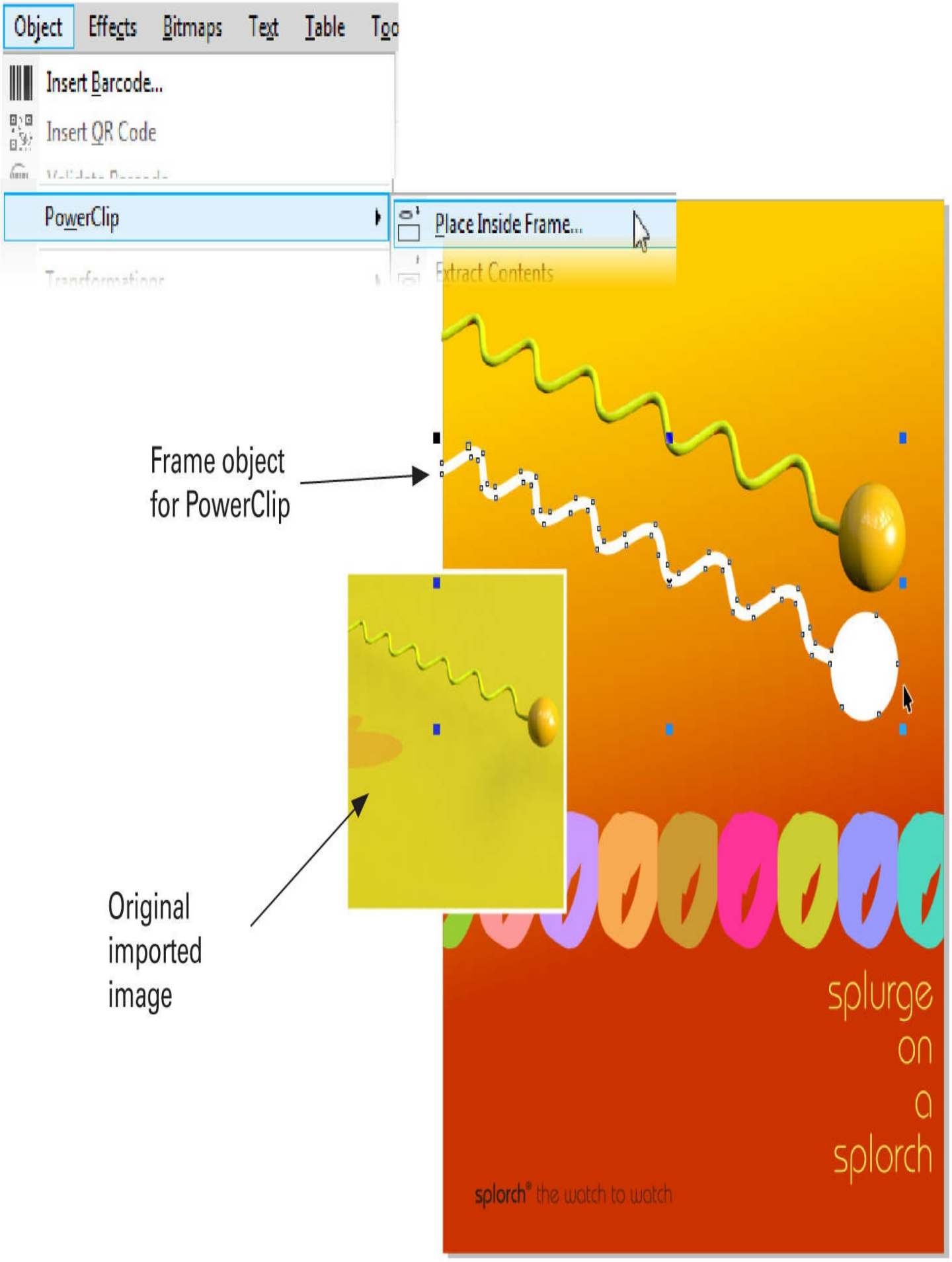

Object
Effects
Bitmaps
Text
Table
Too
Insert Barcode...
Insert QR Code
PowerClip
Place Inside Frame...
Extract Contents
Frame object
for PowerClip
Original
imported
image
splurge
on
a
splorch
splorch® the watch to watch

FIGURE 20-2 **Clipping the exterior away from the main shape in a photo is easy and nondestructive using a PowerClip.**

Compositions with Mixed Media

Creating this print ad is going to be fun…even though you're not getting paid for your work. Ah, but the invaluable experience! You're going to go beyond arranging and moving both bitmap and vector objects to laying out a finished art composition. What you'll see in the Splorch full page ad.cdr file is a nearly finished layout. The typeface family is called Bauhaus, and it should be in the "B" folder on your CorelDRAW disk or main folder. Unless the names of the fonts have changed recently, you'd be looking for TT0406M_.TTF and the other Bauhaus family members. If you want to install this font and play with the ad's text, install one or more members of the Bauhaus font family, unlock the text that was converted to curves in this file, delete the objects, and go to town.

Also in this ad design is the doodad element I mentioned a little earlier. Your task in this assignment is to make the watch look as though it's through the doodad—an abstract design element in keeping with the rest of the ad. After accomplishing this composition miracle, you'll add shadows to anchor the watch and the doodad to the page visually.

Composing a Design Using Vector and Image Shapes

Tutorial

1. Close that Welcome document in CorelDRAW and then open Splorch full page ad.cdr and choose Window | Tile Horizontally so you have a view of both your wristwatch work and the tutorial CDR file. This is one of the rare occasions when the tabbed document feature in DRAW doesn't work for duplicating objects as quickly or precisely as the old-fashioned Windows cascading windows configuration.
2. Hold CTRL and then drag your trimmed wristwatch into the advertisement window, as shown in Figure 20-3. This duplicates your work; it doesn't move it. You can save and then close the wristwatch image as a CDR file now.

Window | Tile Horizontally

Hold CTRL and drag.

FIGURE 20-3 **Duplicate your work in the advertisement window.**

3. Let's scale the watch and the doodad for optimum aesthetic size in the ad before working on a special effect that'll make the doodad go through the wristband, not just on top of it, or underneath. The doodad should be about 8.7" wide. If it's not, select it and then type **8.7** in the Object side width box. Press ENTER. Similarly, make the watch about 4.9" in width.
4. Look at Figure 20-4 to see where a good position on the page is for the two masked pictures. Now, we'll be able to get exactly the same results by doing the following steps. Zoom into the area just below and to the right of the watch's stem.

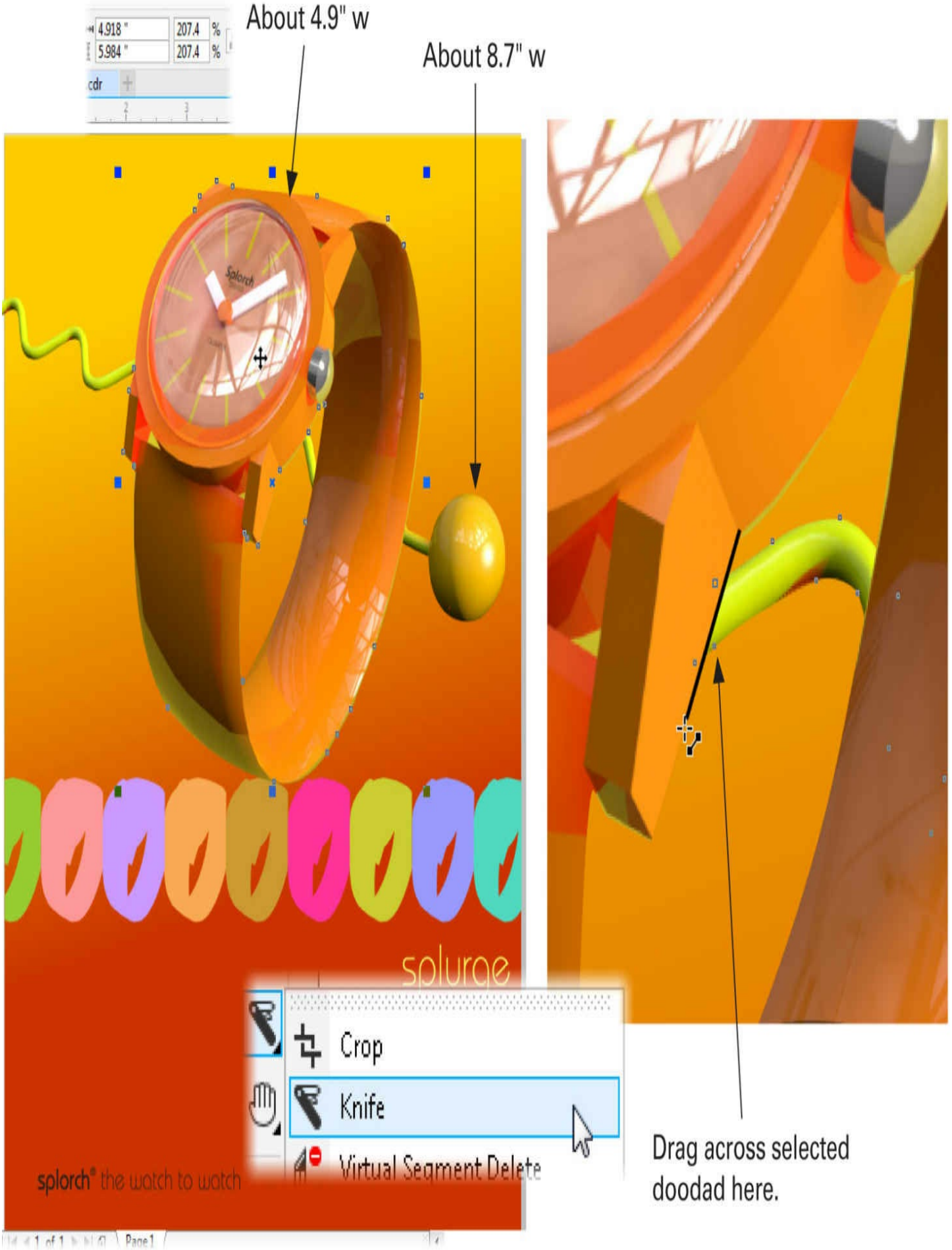

4.918 "
207.4 %
5.984 "
207.4 %
cdr
About 4.9" w
About 8.7" w
splurge
Crop
Knife
Virtual Segment Delete
splorch® the watch to watch
Page 1
Drag across selected doodad here.

FIGURE 20-4 **After scaling and positioning the objects, get out the Knife tool to slice the doodad shape.**

5. Choose the Knife tool from the Toolbox group and then, with the doodad object selected, drag the Knife cursor across the doodad's stem, at an angle, exactly as you see in the figure.
6. The doodad object is now a left and right object. To create the illusion that the doodad is going through the inside of the wristband, with the Pick tool, select the right half of the doodad and then press SHIFT-PAGEUP to put the object at the top of the stack of objects on this document layer. See the next illustration.

SHIFT-PAGEUP

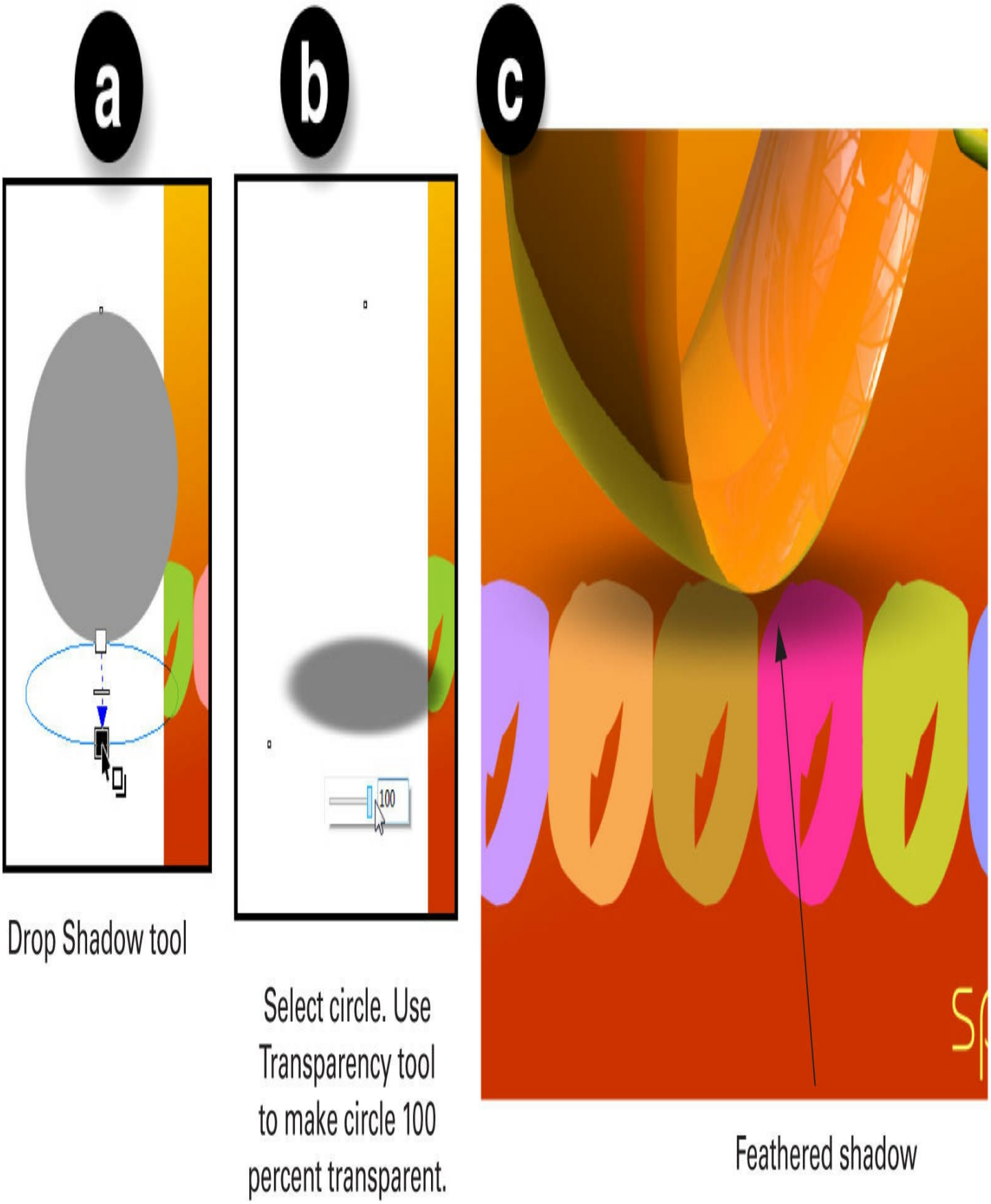
You could call it a day, and ask for your mock fee from your mock boss, but let's take the composition just one level higher in the photorealism realm. In the next section, you'll see how to add drop shadows to the watch and doodad so they are in the page, not just sitting on top of a color field.

The Easy Soft-Edge Shading Technique

Although CorelDRAW's Drop Shadow feature is terrific for making soft, photorealistic shadows of both the drop shadow and cast shadow variety, there is also a quick way to make a shadow of any shape you desire. You draw a shape, add a drop shadow to the bottom of the shape, and then select the shape you drew that's casting the shadow. Then, with the Transparency tool, you make the shape 100 percent invisible. Is that cool or what?!

Walk with me, as I show you how to finish the composition, and put you at the top of Really Good Designers heap:

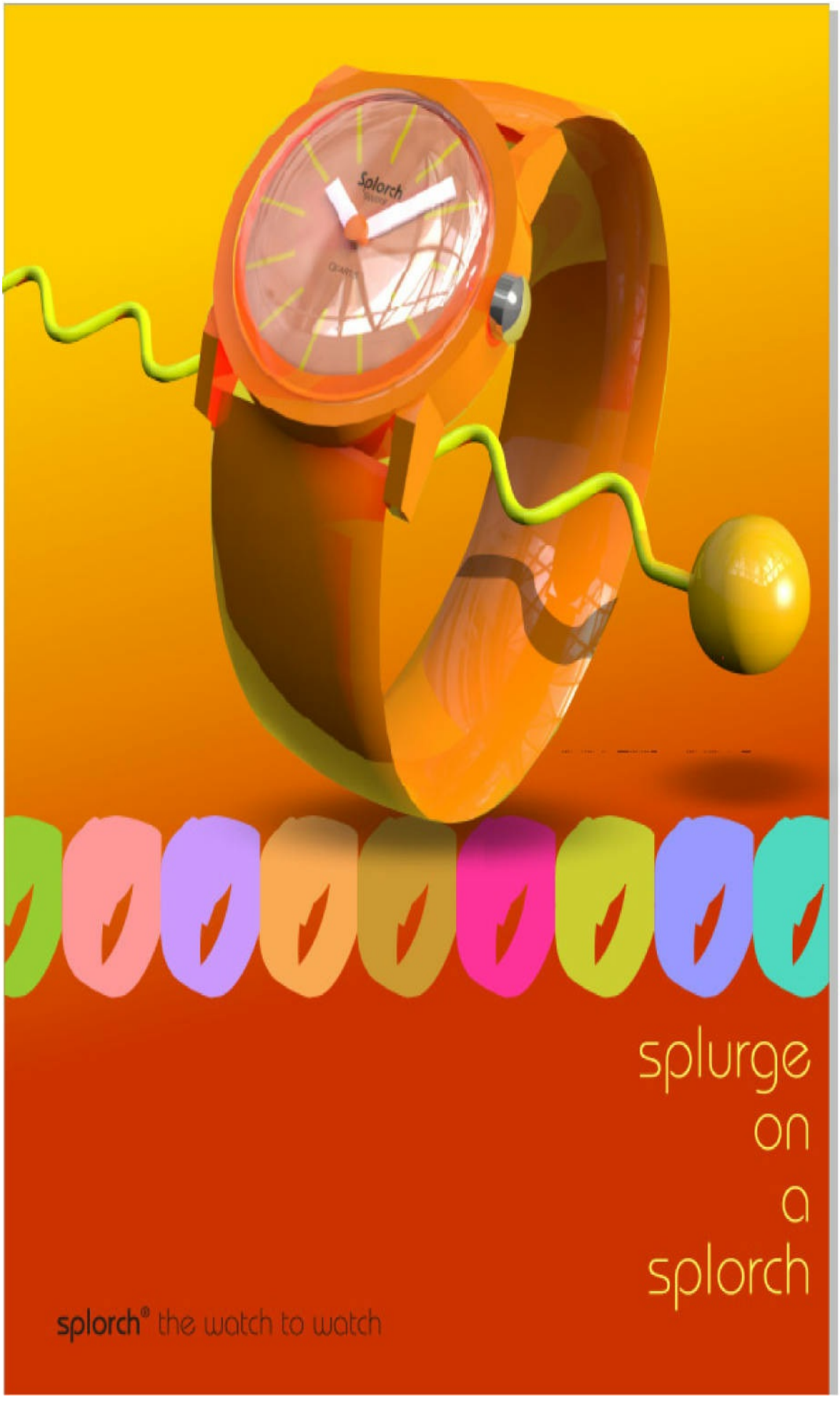
1. With the Ellipse tool, make a circle about the size of the watch. Fill it with a medium gray so you can see it, and then remove the outline.
2. With the Drop Shadow tool, begin your drag to produce the shadow at the bottom of the circle. See callout "a" in the following illustration.
3. Choose the Transparency tool with the circle selected, and then drag the transparency slider on the pop-up to 100 percent. See callout "b" in the following illustration.
4. With the Pick tool, drag the shadow to beneath the watch, as shown in callout "c," and then press CTRL-PAGEDOWN until the shadow is beneath the watch. See the nifty illustration now!

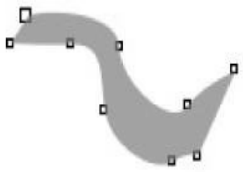


5. At your leisure, you might want to decrease the opacity of the shadow, or make it more oval in shape, or increase the feathering to make the shadow softer. Use the Pick tool

for shape changing, and use the controls on the Property Bar to change the properties of the shadow.

6. You're in the home stretch now! With the Pick tool, drag and then right-click the shadow to drop a copy of it. Scale it and work with the transparency and feather amounts after you place it below the doodad sphere. You'll need to use CTRL-PAGEDOWN to move the duplicate shadow to beneath the sphere.
7. Why not, with the Pen tool, draw a wavy shape like the stem on the doodad, right above the wristband on the watch, so the doodad appears to be casting a shadow on the wristband? It's possible to blur the shadow like the two other shadows, but I think we've had enough retouching adventures with this example. Besides, an object very close to a different object casts a sharper shadow when a light casts shadows. Hey, in art, usually if it looks right, it is right. If your work looks like Figure 20-5, you did *great*. *More* than great! In fact, look in a mirror real quick—you might be *me!*


splurge
on
a
splorch
splorch® the watch to watch



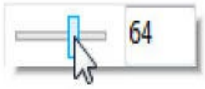

64

FIGURE 20-5 **Text, vector art, and imported photos can all be added to a single, unified composition.**

Working with Alpha Channels and Image Transparency

The following sections explain how you can trim your subject out of an image background, why certain file types are imported with transparency, and what transparency really means in your CorelDRAW work. More features than you might imagine are available for working with bitmaps directly in CorelDRAW; for *exceptionally* tricky image-editing assignments, Chapter 21 covers some of Corel PHOTO-PAINT.

Working with Partial Transparency

Both Alpha Channel transparency and Image Layer transparency offer more than simply 100 percent opaque or 100 percent transparent areas. With 24-bit images, you can have 256 levels of opacity in any area of the image, and this leads to some fascinating visual effects that you can create. You'll work shortly with an image that has semitransparent areas, but right now, it's time to learn how to *build* semitransparent areas into an image that has none but should have them. Bob's Beer, a fictitious microbrewery, has an image of a bottle in PNG file format that is surrounded by transparency. Let's say Bob wants the bottle to sit in front of a background that has his name repeated far too many times. Visually, his name should partially show through the neck of the bottle where there's only tinted glass and no beer.

The following tutorial shows you how to trim away the top quarter of the bottle, the most transparent part. Then you'll see how to make this area only partially opaque so some of the background shows through. And to top it off, you'll see how to build a cast shadow from the bottle onto the "ground" in the composition.

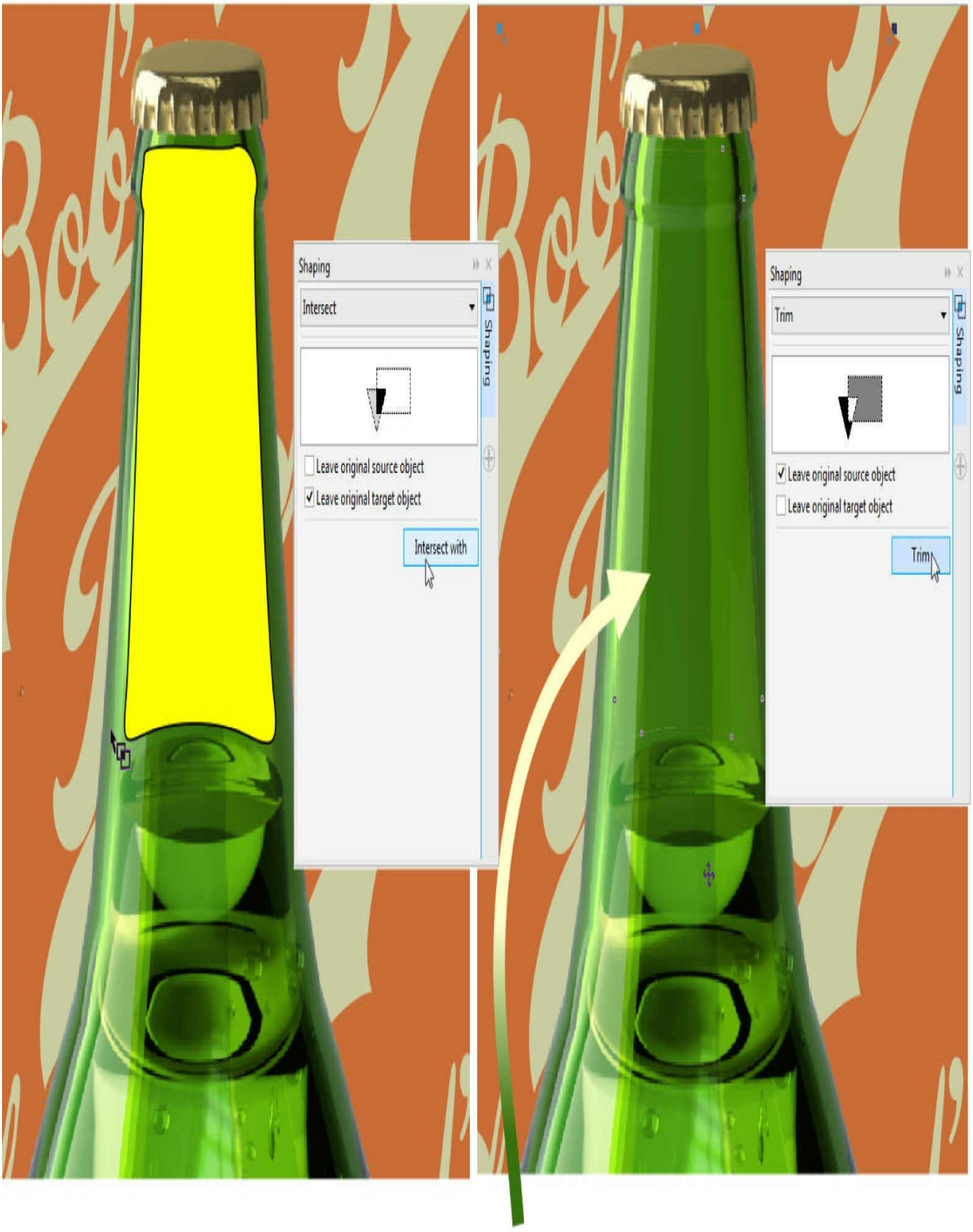
Creating a Photorealistic Glass Effect

Tutorial

1. Open the file Bob's Background.cdr, and then click the Import button and choose Bob's Beer.png (it's a domestic beer, but you'll import it anyway). Click Import and then with the loaded cursor, click-diagonal-drag until the bottle is placed in the image as shown here.

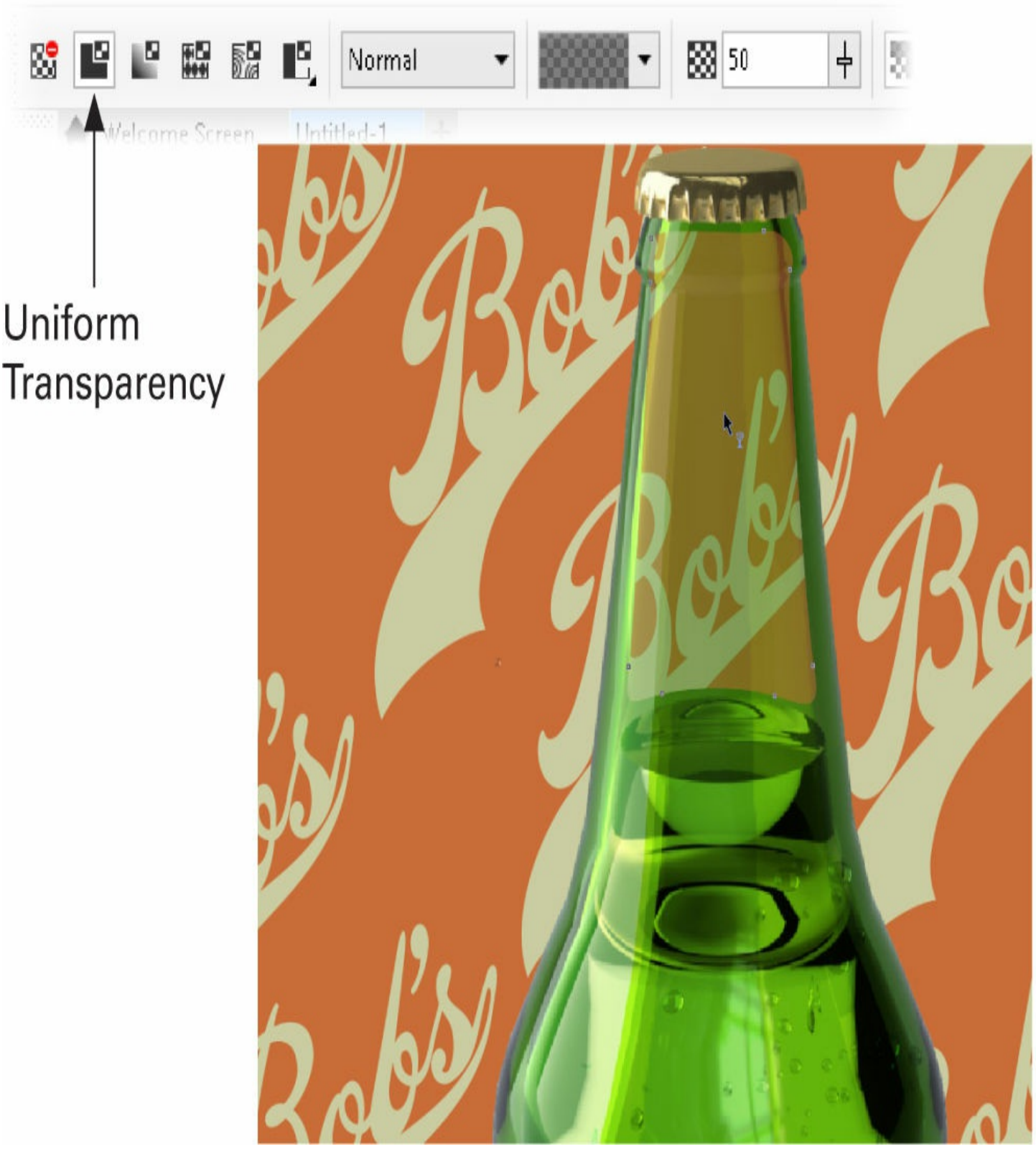
2. With a Pen tool (the Bézier Pen works fine in this example), create a shape that fits in the top part of the glass, from the fill line to the bottle's lip, staying slightly inside the neck of the beer bottle so the edge is not part of the trimming operation you'll perform in a moment. You should fill the shape after creating it to better see what you're doing in the following steps—any color is fine.

3. Select the shape but not the bottle. Choose Object | Shaping | Shaping to display the Shaping docker. Choose Intersect from the selector drop-down list, and then check Leave Original Target Object. Now uncheck the Leave Original Source Object box. Click the Intersect With button and then click the bottle. The shape is deleted because it's the source object, and you didn't choose to leave it. Apparently the bottle has not changed, but there is a perfect cutout duplicate of the top of the bottle resting on top of an unchanged bottle; you're halfway there—you need to trim away part of the bottle using the new intersect shape now.
4. Click the spot formerly occupied by your drawn object to select the product of the intersect operation in Step 3 (don't worry; it's hard to see that it's a separate object). Choose Trim from the Shaping docker's drop-down list, check Leave Original Source Object, and uncheck Leave Original Target Object. Click the Trim button and then click the bottle, and the beer bottle is now actually two separate pieces. See the following illustration for the docker settings for Steps 3 and 4. Now it's on to transparency.



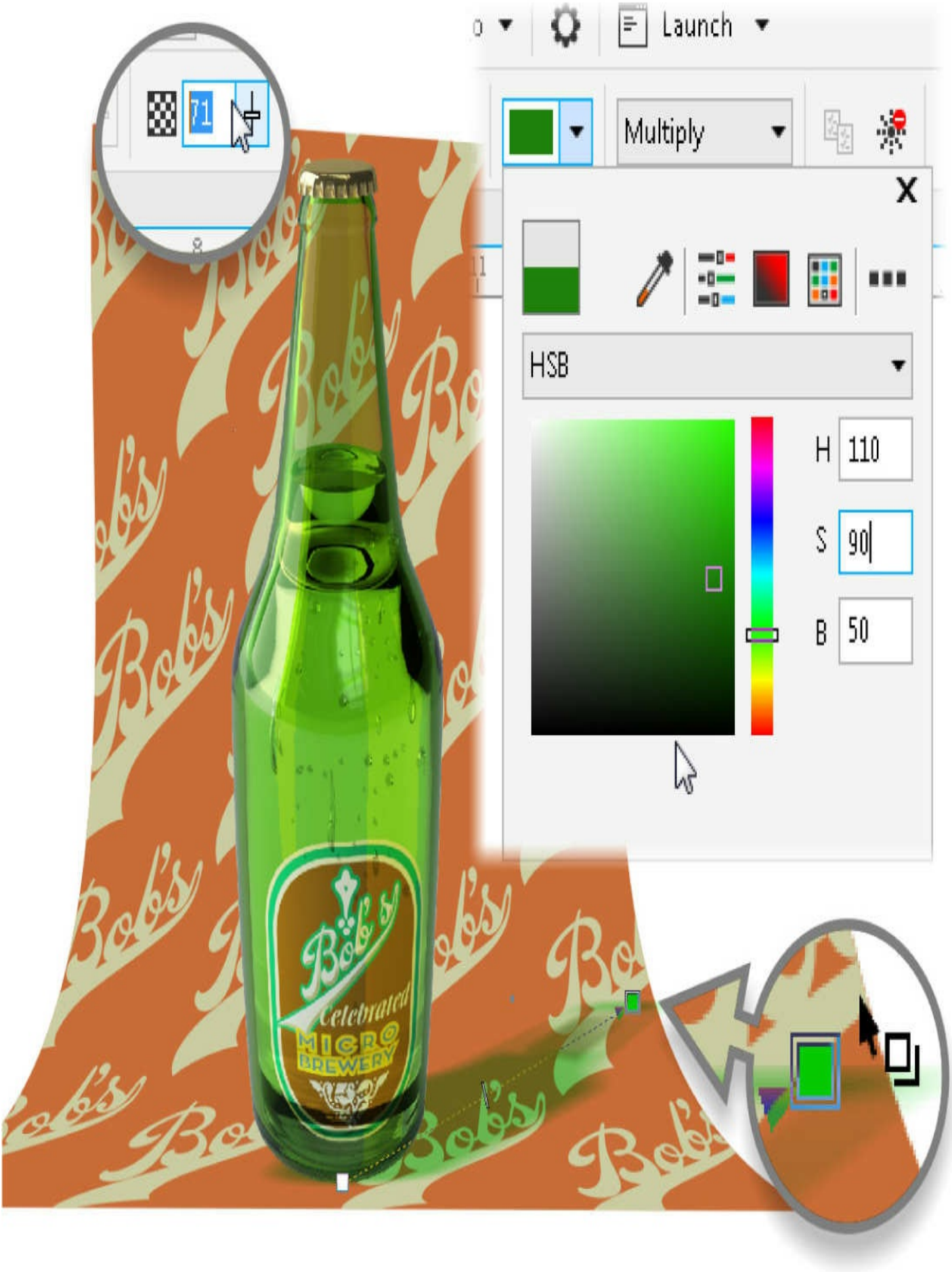
Separate object (not obvious)

5. Select the top part shape and then choose the Transparency tool from the Toolbox; the little wine glass that's about to tip over icon. Click the Uniform Transparency button on the Property Bar, and then drag the Opacity slider on the Property Bar to about 50 percent. As you can see next, your editing work resulted in quite a convincing illustration. You can see Bob's logo in the background peeking through semitransparent glass; the background is even tinted a little from the green of the object on top of it.



6. Here's the *pièce de résistance*: with the bottle selected and not the semitransparent piece, choose the Drop Shadow tool. Click toward the bottom of the bottle image to define an anchor for the shadow and then drag up and to the right.
7. Click-drag the end marker of the shadow so the shadow ends closer to the bottle. Then, because the bottle should be casting a deep green (not black) shadow, click the

Shadow Color flyout on the Property Bar and then choose something like hex value 20800D. Because it works pretty well in this case, you can just type in the value. Click OK to get back to your work. Also consider increasing the opacity of the shadow by dragging the Drop Shadow Opacity slider on the Property Bar up to 70 percent or so.


Launch
Multiply
HSB
H 110
S 90
B 50
Bob's
Celebrated
MICRO
BREWERY

8. Well, oops. The area you trimmed in Step 4 is not part of the shadow—there's a hole in the shadow where there should be a lighter green, because a shadow cast by green glass through beer would be a little darker than a shadow cast through green glass alone. No problem; you can draw a fill shape for the missing part of the shadow, as shown here, fill the shape with a lighter green than the bottle shadow's color, and then give it about 50 to 60 percent Uniform transparency.


69
15
Normal
Bob's
Celebrated
MICRO
BREWERY

Blending Photos with Transparency

Let's imagine in the tutorial challenge coming up next that the Tree.png file you'll be working with was created by masking everything except the tree in the photo, and then you saved it as a PNG file with transparency using PHOTO-PAINT.

You know now that an image can have transparent areas, and you know that you can use CorelDRAW's Transparency tool to make any object on a page *partially* transparent. The steps that follow show you how to perform surreal, completely professional photo retouching with two images you graft onto one another with only one CorelDRAW tool.

Creating a Transition Between Two Images

Tutorial

1. Press CTRL-N to create a new file; accept the default standard letter page size, and define it as Portrait orientation.
2. Import ThumbsUp.jpg. You'll want to click-drag the loaded cursor after clicking Import to scale the imported image to the 11" height of the page.
3. Import Tree.png. PNG files can (in some cases) retain image resolution information, so all you need to do is click the loaded cursor on the page.
4. With the Pick tool, position the tree so its trunk fits over the thumb in the underlying photo.
5. Choose the Transparency tool from the Toolbox.
6. Click-drag downward, starting from around the thumbnail area in the underlying photo to just above the trunk on the tree. You should see the amazing transformation between the guy's thumb and the trunk of the tree. If the beginning and end points for this Linear transparency aren't perfect, you can adjust the start and end points with the Transparency tool cursor. Because you performed this edit interactively, you'll see that the Property Bar states that this is a Fountain Transparency style and that the Linear Transparency type button is depressed automatically.
7. Unfortunately, the guy's thumb doesn't taper toward the top like the tree trunk does; some of the thumb is visible, ruining the special effect. Choose the Bézier Pen tool from the Toolbox, and then draw a closed shape whose right edge matches the contour of the tree trunk's left side. Fill it with the same color as the background of the thumb photo—choose the Color Eyedropper tool from the Toolbox, click over the background, and then click the paint bucket cursor on the shape you drew. See Figure 20-6 for the exact location of this edit in the photo.

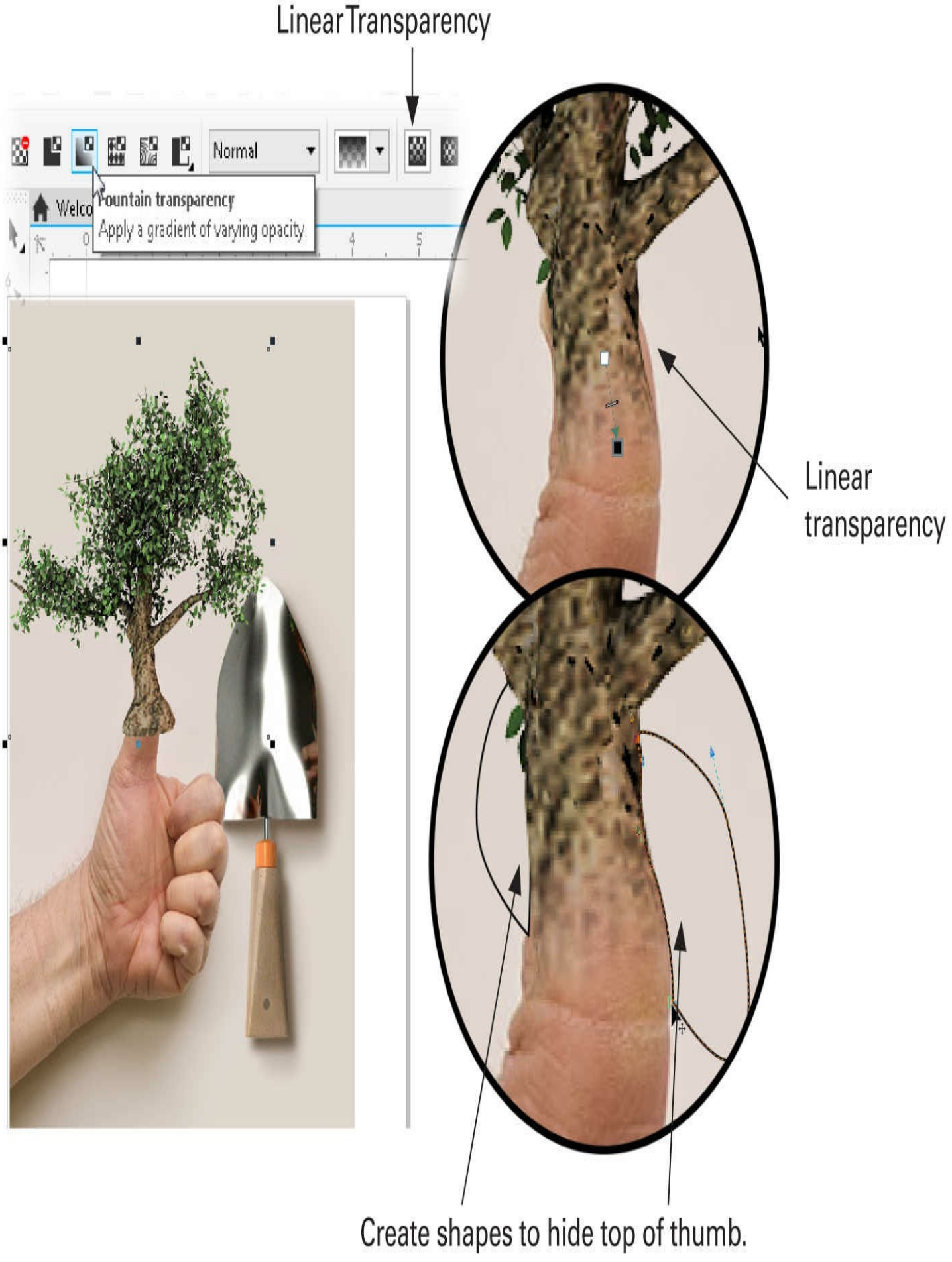

Linear Transparency
Normal
Fountain transparency
Apply a gradient of varying opacity.
Linear transparency
Create shapes to hide top of thumb.

FIGURE 20-6 **Create a blend between two photos to present unique and visually arresting imagery.**

8. Perform Step 7 on the right side of the thumb, after drawing a second shape.
9. Remove the outline of both shapes (select them both) by right-clicking the No Fill color well on the Color Palette.
0. Read Chapter 10 on working with text because this image would make a terrific magazine cover.

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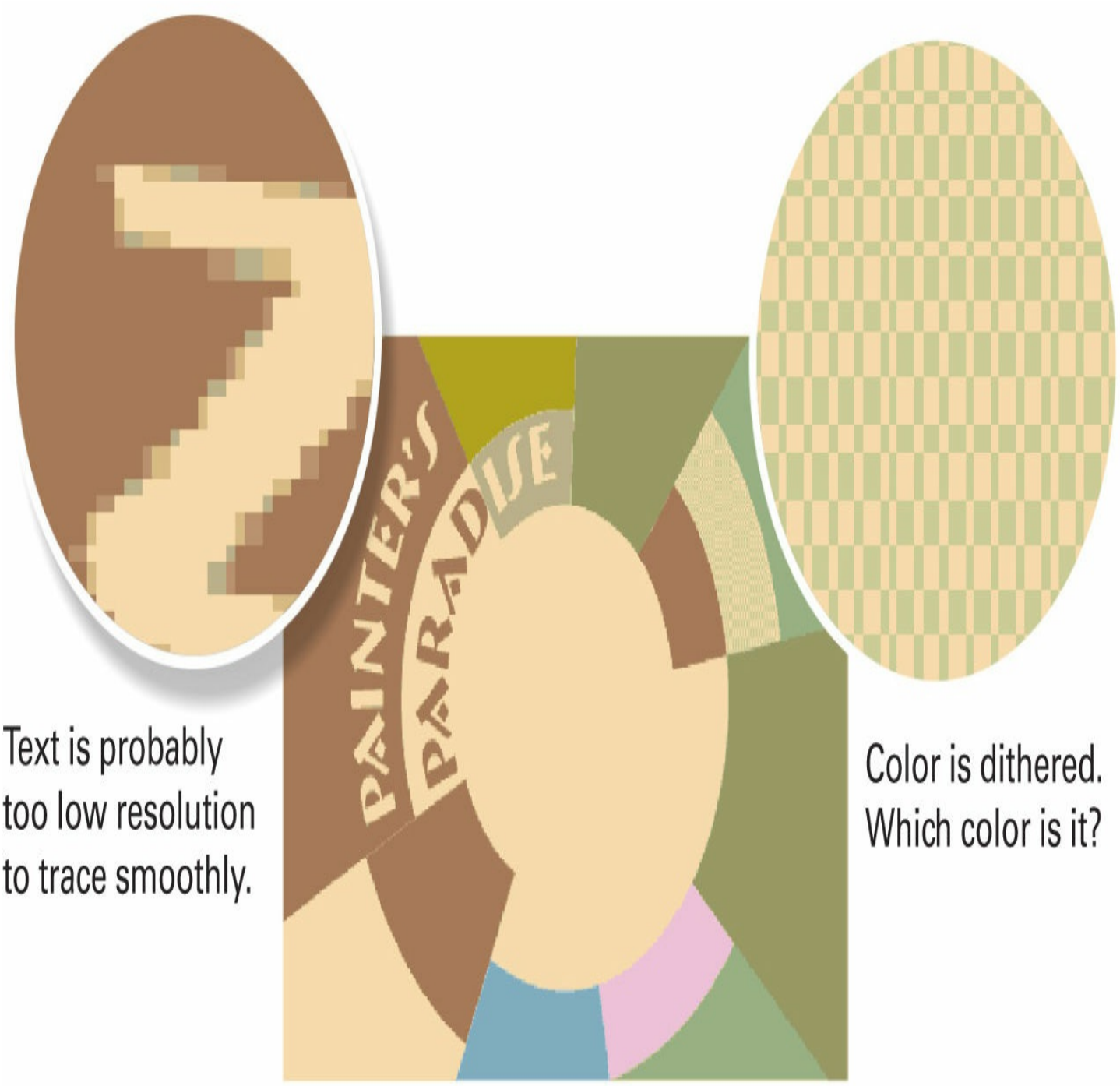
Bitmaps to Vector Art: Using PowerTRACE

You can export both vector art and bitmaps to bitmap file format, but once in a while, you'll need to go the other way: taking a bitmap and making vector art from it. Many design professionals are faced daily with clients who want to use their logo for a truck sign or a high-resolution print ad, but all they can provide the designer is a really pathetic GIF copy from their web page.

Fortunately, designers don't have to reconstruct logos by hand—Corel PowerTRACE is a highly accurate utility that often produces a vector equivalent of a placed bitmap that requires no hand-tweaking afterward. What PowerTRACE does is simple: it creates a vector version of the selected bitmap. *How* PowerTRACE does this is not easy to explain, but if you understand the "how," you'll be better prepared to choose the right option before making a vector copy of an imported bitmap. In a nutshell, PowerTRACE examines the bitmap based on the criteria you specify in the dialog and then seeks edges in the bitmaps that show a clear and marked difference in color and/or brightness between neighboring pixels. PowerTRACE then creates a vector line at this neighboring region, continues to create a closed path (with the Centerline option chosen, it creates open paths), and fills the path with the closest color match to the pixels inside the area it creates. The following sections take you through the operation of PowerTRACE and offer suggestions on settings as well as when and why you'd use this handy feature.

Bitmap Conversions for Logo Alterations

Sometimes you'll want to use PowerTRACE to rework an existing logo that's in bitmap format. Many times—and the next tutorial prepares you for "many times"—the existing logo of your client is a total mess. They can't find the original because they fired the previous art director/custodian. Additionally, the only copy they have of a logo that they want not only reproduced, but also edited, is a GIF image they downloaded from the website. They want new text to reflect the new ownership—the former boss and custodian fired himself. And you want a better design than the half-hidden, sorry picture you have to work with. As you can see in the next illustration, the logo is a GIF file; it looks to be sampled from only 12 colors, and diffusion dithering was used to fake the additional colors. The close-ups reveal that the text has severely jagged edges, and one of the colors isn't even a color, but rather a pattern of two colors to simulate a color that fell outside of the limit of unique colors (*color space*).



Yep, you have just the tools you need in DRAW to repair and revise the logo. You also need a strategy for revising the piece. Fortunately, the best and fastest solutions for this work are covered in the following tutorials. Is that convenient, or *what*?

PowerTRACE Options

This logo, placed in Painter's Paradise.cdr, is probably the hardest one you'll encounter professionally to use PowerTRACE on for cleanup work and alterations. If you succeed at this fictitious example, your *paying* gigs will be a charm. The steps are not hard, but the order of the steps and the strategy will be a little bit of a challenge. Let's get familiar with

Corel's PowerTRACE as the first step to acquiring and vectorizing most of this design—the part that machine and man can tease out of this poor bitmap. Choose Bitmaps | Outline Trace to begin this adventure.

This logo has too much dithering, and the edges are fuzzy. Now, ordinarily, this would call for a lot of smoothing and not much detail, but this produces a lower number of unique colors, and you don't want that. Therefore, PowerTRACE should be set for less smoothing and greater precision. As you can see here, the logo has a transparent background, because Options | Remove Background has been checked. The final product, therefore, will include a little something special with no extra time spent by you removing the white background by hand. Once you are in the interface for tracing, there's some ground to cover regarding the options you set, which will have a definite impact on the quality of the trace. Figure 20-7 is reviewed in detail next.

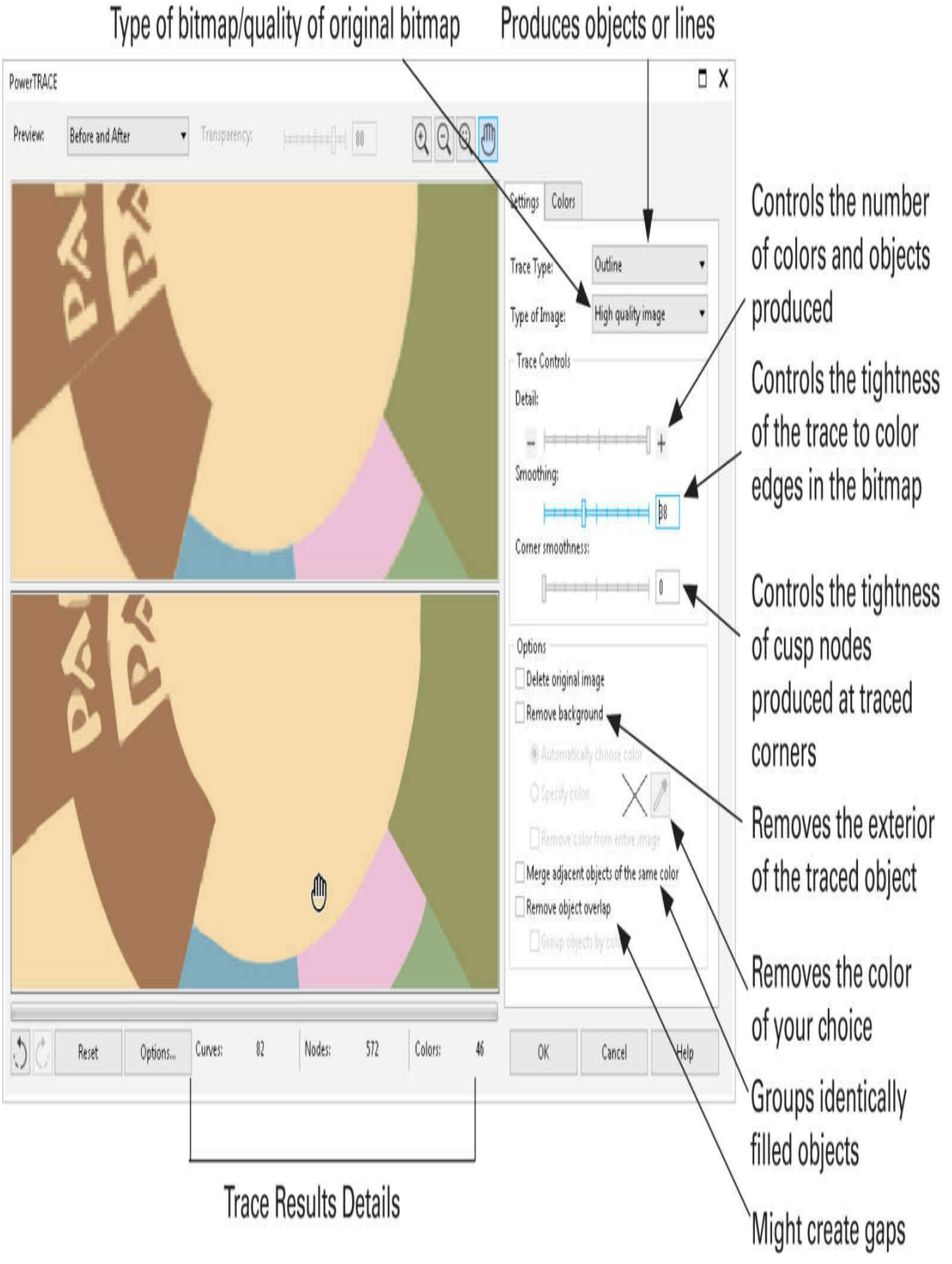

Type of bitmap/quality of original bitmap
Produces objects or lines
PowerTRACE
Preview:
Before and After
Transparency:
80
Settings
Colors
Trace Type:
Outline
Type of Image:
High quality image
Trace Controls
Detail:
Smoothing:
88
Corner smoothness:
0
Options
Delete original image
Remove background
Automatically choose color
Specify color:
Remove color from entire image
Merge adjacent objects of the same color
Remove object overlap
Group objects by color
Reset
Options...
Curves:
82
Nodes:
572
Colors:
46
OK
Cancel
Help
Trace Results Details
Controls the number of colors and objects produced
Controls the tightness of the trace to color edges in the bitmap
Controls the tightness of cusp nodes produced at traced corners
Removes the exterior of the traced object
Removes the color of your choice
Groups identically filled objects
Might create gaps

FIGURE 20-7 **Use the features and settings in PowerTRACE to create an optimized group of vector objects based on the bitmap.**

- **Trace Type** In addition to Quick Trace**,** you can choose Outline or Centerline from this drop-down. Outline is the method that produces objects based on areas of similar color in the bitmap. Centerline is a good option when your source bitmap is calligraphy or a technical drawing; this option generates open paths to which you can assign different widths and styles after the trace is placed on the page.
- **Type of Image** Both Centerline and Outline Trace have options—you'll be using Outline Trace, which has the most options for helping PowerTRACE understand what type of graphic is to be traced. This usually has an impact on accuracy, limiting image noise and other things. Depending on your choice—from Line Art to High Quality Image—PowerTRACE can render a few objects or hundreds. You can customize the way TRACE evaluates a bitmaps image by altering parameters, and you can also use an "inappropriate" setting for your imported image. No two images are alike, and you might be surprised at the hi-fi rendering of a piece of clipart you trace using the Line Art setting, for example.
- **Colors** On this tab, you can set the number of unique colors PowerTRACE evaluates, from 1 (which renders a stencil of your original) to a varying maximum of unique colors, which you can limit by typing in a value. You can specify the color mode for the trace; you'd choose CMYK, for example, if you needed a trace that could be sent as an EPS file to a commercial printer. Generally, your best bet is the RGB color mode. You can also sort the colors to be used by how frequently they appear in the original bitmap or by similarity. Additionally, if you intend to replace a color when you edit the traced result, you can do so by clicking a color well and then clicking Edit.
- **Settings** This tab is used to define how tightly and accurately you want PowerTRACE to render the bitmap as a vector object.
- **Detail** You set the overall complexity of the trace with this slider. Higher values instruct PowerTRACE to evaluate the bitmap carefully, whereas lower Detail settings can produce a stylized, posterized trace with fewer colors and many fewer groups of objects.
- **Smoothing** This setting controls both the number of nodes along paths and, to a lesser extent, the number of objects the trace yields. A higher smoothing value is good when your bitmap import is a GIF image that contains a lot of noise, dithered colors, and jagged edges.
- **Corner Smoothness** Use this setting depending on the visual content of your imported bitmap. For example, a photo of a sphere probably doesn't require any corner smoothness. However, a photo of a bird's feather will certainly have a lot of abrupt color and geometry changes—you'd want to use a very low Corner Smoothness setting

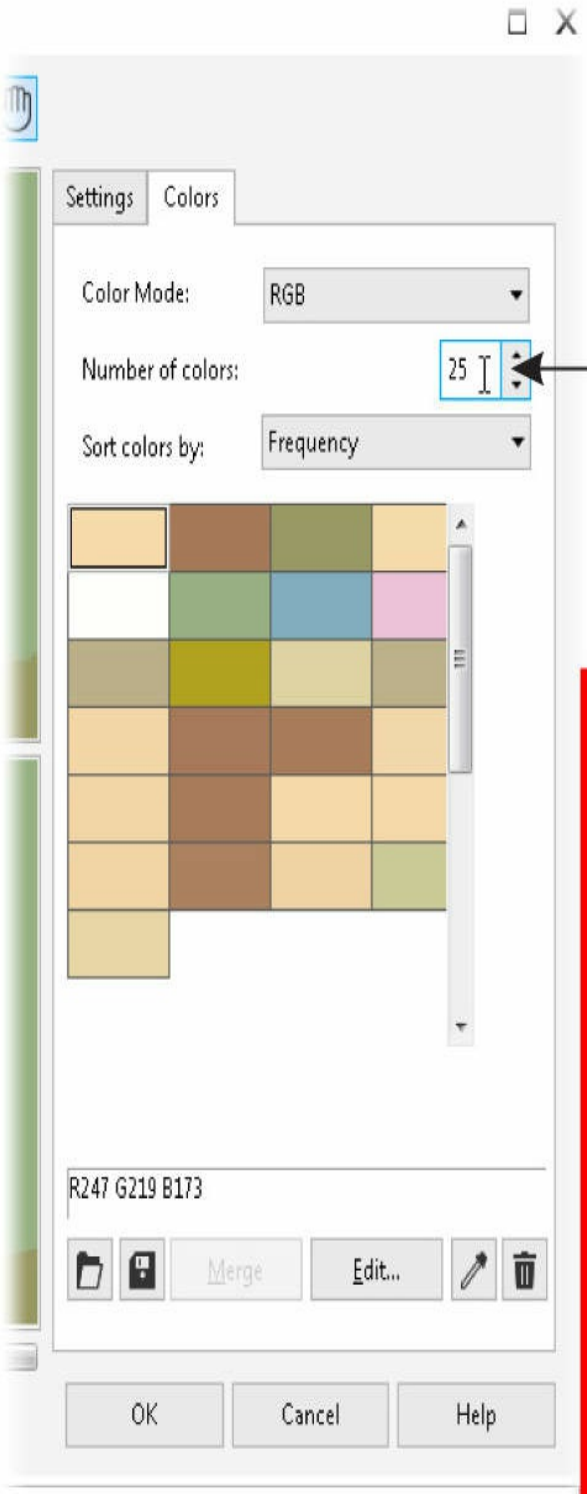
to represent accurately the sharp turns and corners that make up a feather.

- **Remove Background** Usually you'll want to check this box. When an imported image such as this logo is floating in a background of white, Remove Background doesn't make the background a huge white rectangle. Optionally, any color can be removed from the final trace by clicking the Specify Color button and then using the Eyedropper to choose a color from the preview window.
- **Merge Adjacent Objects of the Same Color** This option makes one object instead of several if the bitmap contains areas of almost identical color in neighboring regions.
- **Remove Object Overlap** Most of the time, you'll want to leave this box unchecked. If you do choose to enable Remove Object Overlap, there might be visible gaps between the resulting grouped vector shapes, making it hard to put a solid background behind your trace without the background color or texture peeking through. This option must be chosen before you can use Group Objects by Color.
- **Group Objects by Color** This is a handy feature that automatically groups identically colored objects after you click OK to make the trace. You can then choose a different color and apply it to the entire group or delete an entire group of objects identically filled, and you don't have dozens of objects that can be accidentally moved lying all over the page.
- **Trace Results Details** This area on the dialog predicts how many objects (curves), how many nodes, and how many different colors are produced. As a guideline, if the results show more than 200 objects will be created in the case of single object, think twice. It's a large number of objects to edit, and the resulting trace will possibly be a challenge to work with.

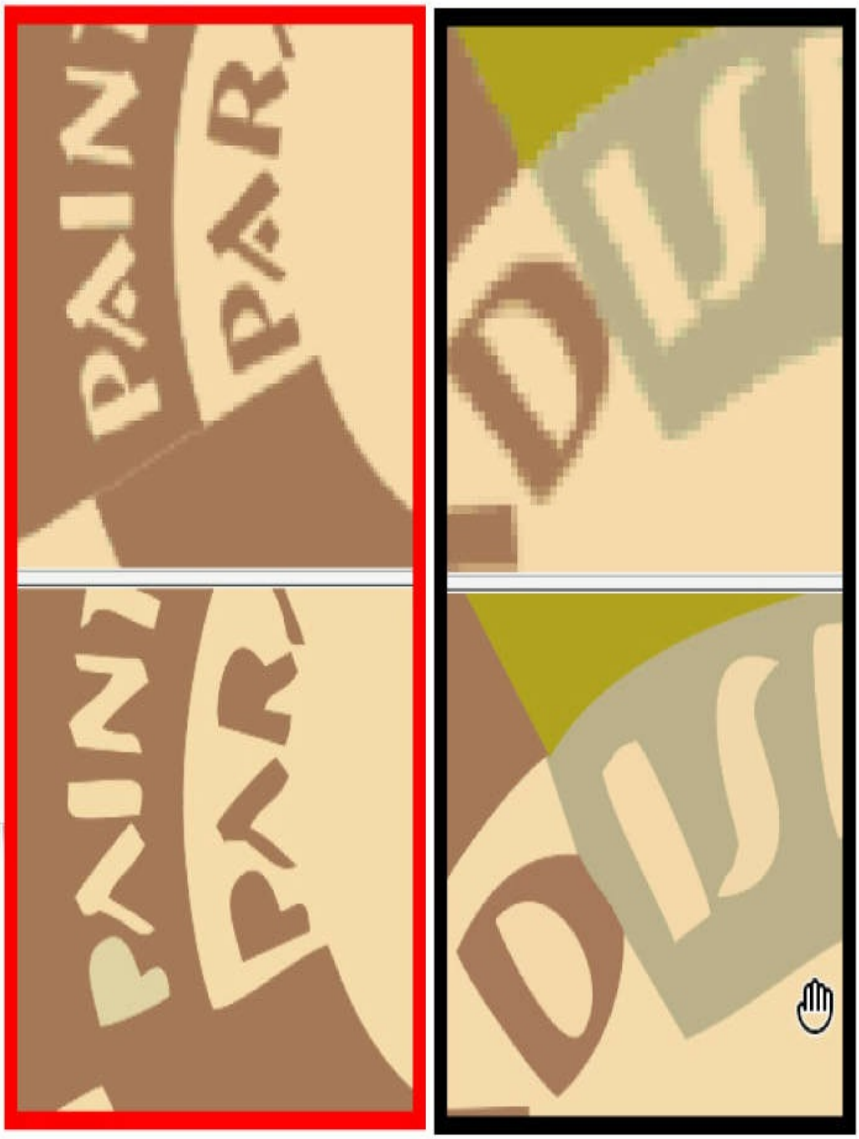
The Colors Tab in PowerTRACE

Before you decide on the best setting for this example's image, click the Colors tab in PowerTRACE and benefit from this nugget of advice. Yes, you *could* set the Detail slider to a value lower than the maximum. You *could* also choose a different type of image from the Type of Image drop-down. However, doing either of these things reduces both the number of nodes *and* the maximum number of colors PowerTRACE renders.

The following is an example of how using a less-than-optimum trace setting can result in missing parts of small areas, such as text, and poor color matches.



Experiment with the number of colors. Look at the preview as you experiment!



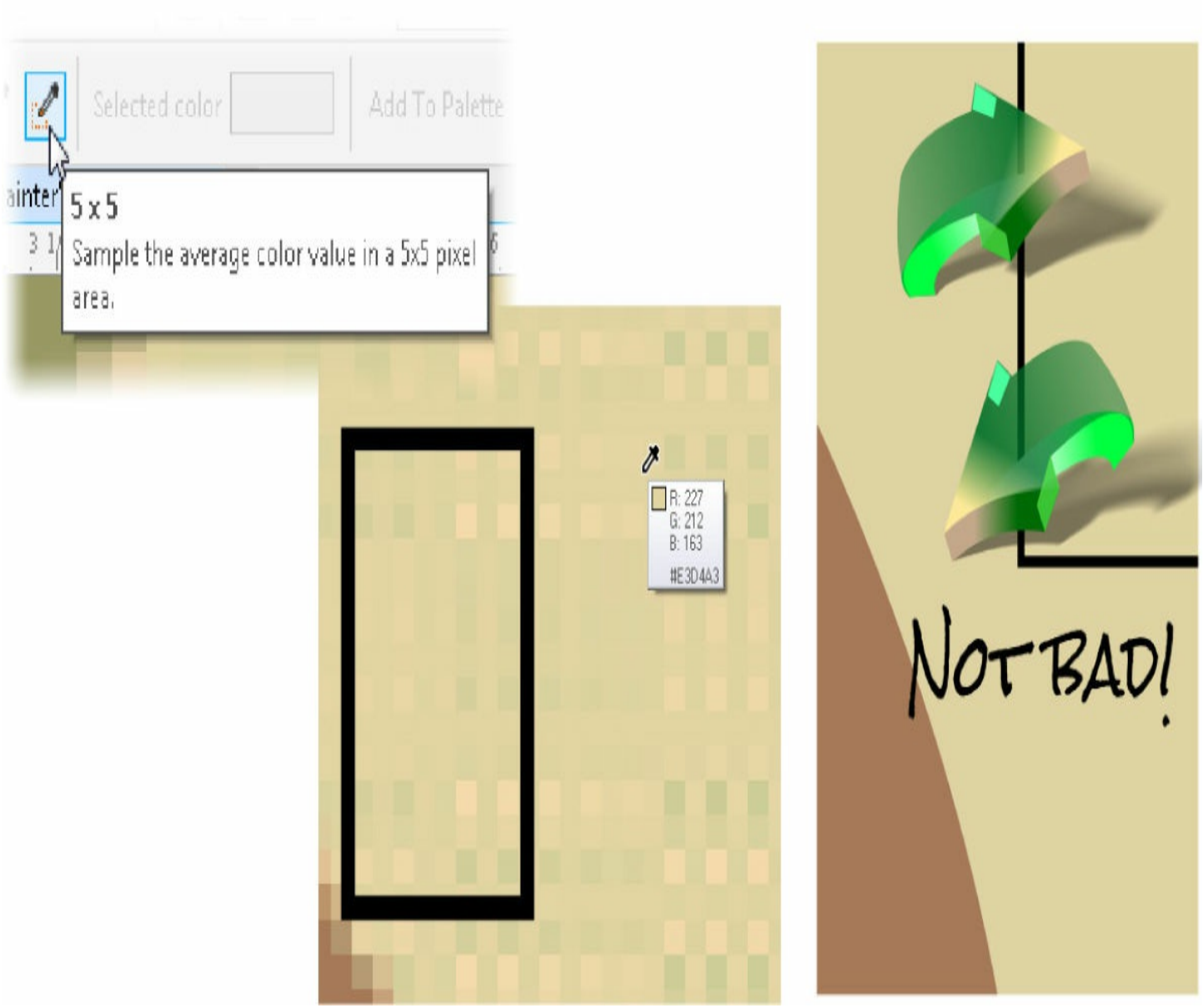
Low-quality trace

High-quality trace

I estimated, through trial but no error, that 24 unique colors will produce all the colors in this GIF image fairly accurately with the best typeface quality. Because this is not a real-world assignment, go ahead and press OK after you've set the options shown.

As you can see in the following illustration, the severely dithered color at about 2 o'clock in the design was traced with a pretty darned close color match to the GIF. To figure out what a dithered color should represent, use the Eyedropper tool, set at a 5×5 pixel sampling area, and then click over an area of dithering that shows several colors. I moved a filled rectangle from the eyedropper sample next to the same area in the PowerTRACE, in the next illustration. Wow, that's a close match to the averaged sample of the colors in the dithered area.

If a trace of a dithered area of your own GIF file does not match the trace, the solution is just around the corner: you sample the original GIF's dithered area at a 5×5 pixel range, and then with the Fill tool, you fill the miscolored object.

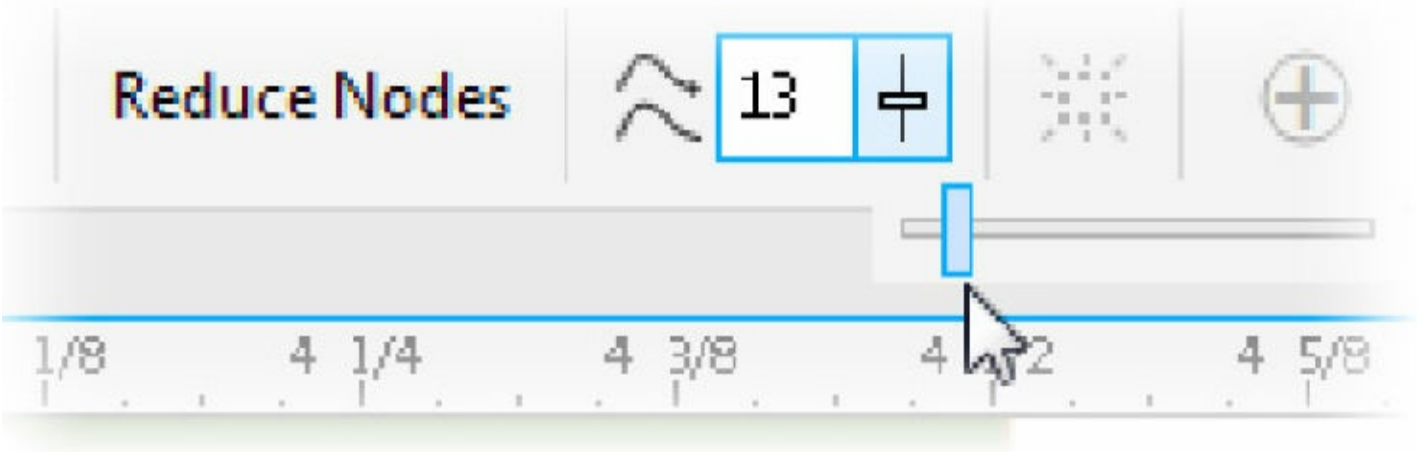


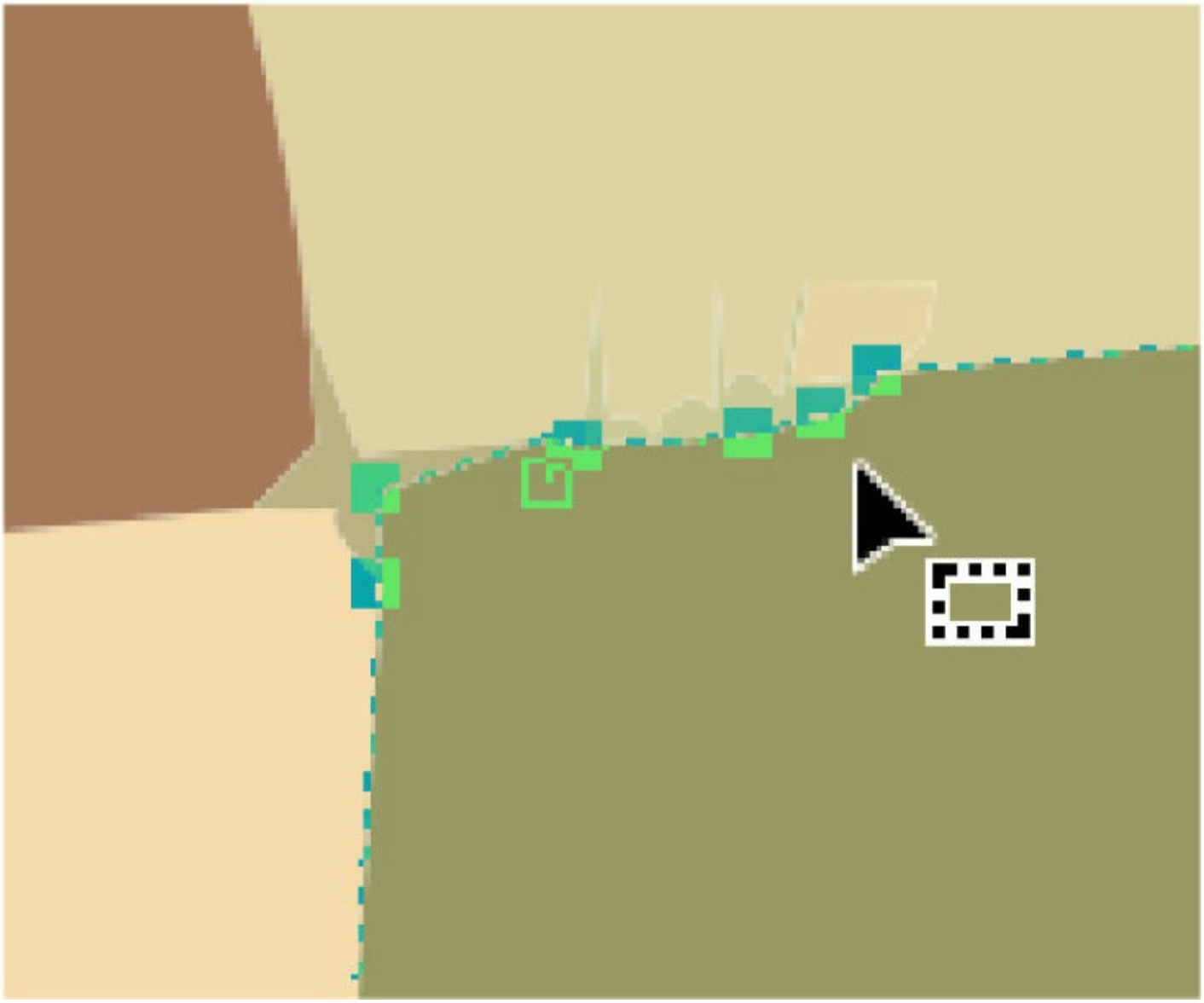
There are a few more steps that are needed to repair, restore, and revise this vector copy of the poor GIF logo. In the next section, I'll run down the problem and then the solution.

Lines, Curves, and Excess Nodes

Even with settings that provide a "tight trace," you will encounter, including in this example, too many nodes along a path, especially at corners. Also, there will be small, unconnected pieces of the trace in areas you won't see unless you go to View | Wireframe. When curves aren't curvy enough and lines that should be straight look like a branch on a maple tree, following this succinct but extraordinary set of solutions will help:

- **Too many nodes on a path** It's possible that the result of the trace will be a group of objects; it's a good idea to select the trace and then press CTRL-U to Ungroup. With the Shape tool, marquee-select this area so that only the excess nodes and not the useful ones are modified. On the Property Bar, drag the Reduce noise slider until you preview the deleted nodes on your drawing, and then release the slider. You can see the effect in this illustration.





- **A curve is bumpy or lopsided** Again, the Shape tool can enhance a path that is supposed to be perfectly curvy. Manually delete nodes you know are superfluous—a curve might have a node at its center, but not six or seven! You can then either drag at

the center of the curve to increase or decrease its curvature, or drag to one side or the other to correct the curve's slope. For more precision, click a cusp node at the beginning or the end of the curve segment, and then drag the control handle and the control point to perfect the curve. To make lines into straight lines, marquee-select the beginning and end nodes (hold SHIFT and then click on node, then the other), and then right-click and choose To Line from the context menu (the pop-up menu).

The Solution to Messed-Up Text

I'm going to play the client for a moment and tell you that I don't care what font you use to replace the text, but it should be "fat" (or "bold" in the words of a designer) and should say "Pigment Pals," which is the new name for the paint emporium.

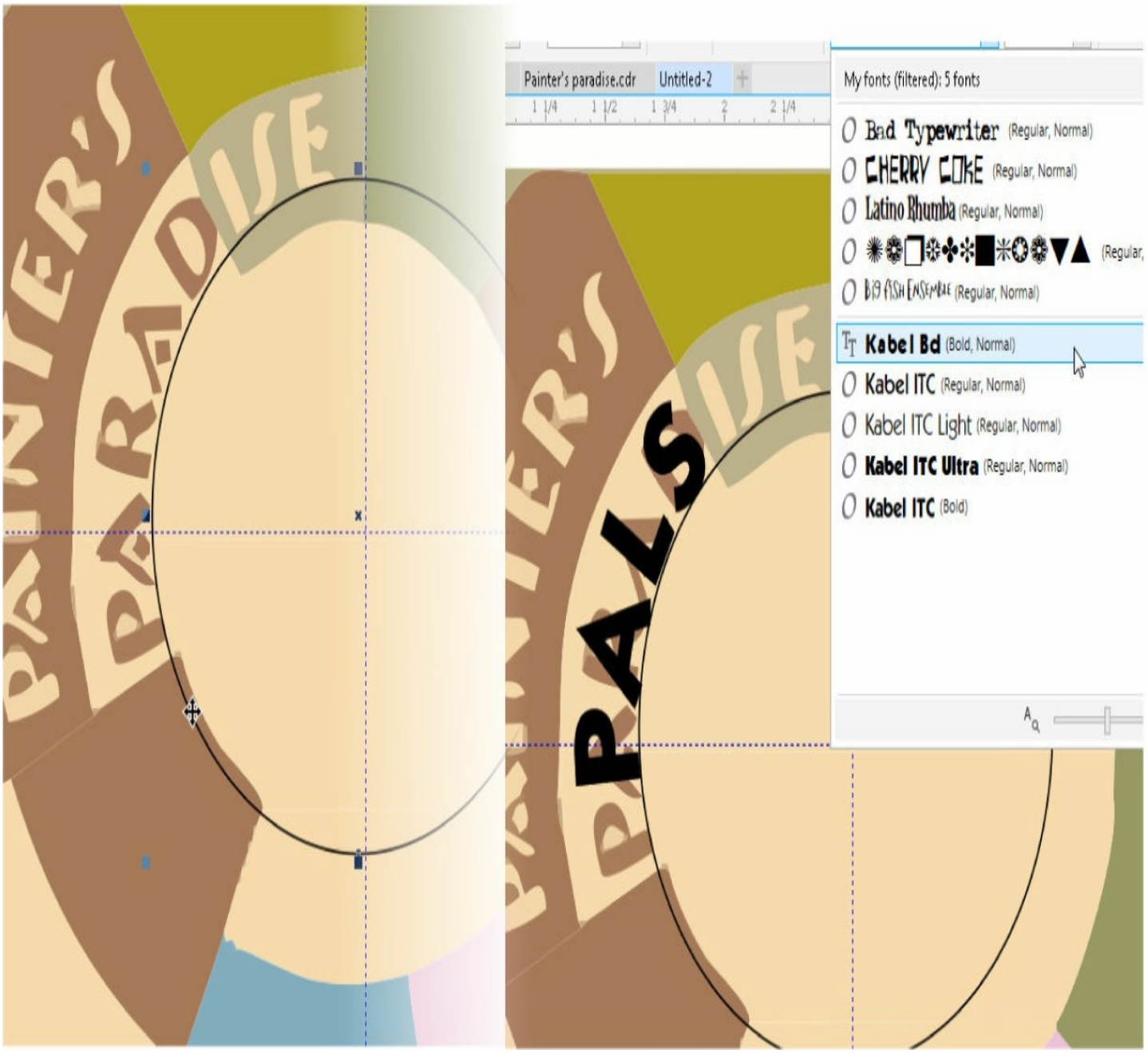
You'd want to replace the text regardless of a word change; the text as traced is just too spindly and "hand drawn" in appearance. This is not PowerTRACE's fault. The less-than-great text is a result of the original GIF expressing the text in a mere handful of pixels. You can't trace great text from 17 pixels (or whatever)! Here are the steps for replacing the tracings with real text.

Making New Text Along a Curve

Tutorial

1. Drag a vertical guide and a horizontal guide out of the rulers to estimate where the center of all the colored arcs and text in this vector image is.
2. Choose the Ellipse tool. Hold CTRL-SHIFT to trace a perfect circle from the inside out.
3. Drag from the intersection of the guides while holding the modifier keys. When the circle appears to be sitting on the baseline of the word "Paradise," release the mouse button and keys. Now with the Pick tool, move the circle until it rests under the arc of the vector text in the trace. You might notice that the center of the circle is not the center of the arced text, but that's okay for the moment. It's of importance right now to fit the circle to the arc of the bottom line of the text (the word "Paradise"). Keep the circle selected.
4. With the Text tool, hover around the circle until the cursor turns into an insertion (vertical) bar with a curvy segment to its lower right. This indicates you can type now, and the text will flow around the circle. Type **PALS**.
5. You can use the Property Bar right now to center the text relative to the original "Paradise." You can use the Offset slider on the text (it should be selected) to move the text to the right or the left. You can also marquee-select the nodes of the text using the Shape tool and drag the characters.
6. Choose a good font from the enormous collection of typefaces that come with

CorelDRAW. If you sift through the "B" section of the collection, you'll find Bremen Bold (it's probably named TT1231M_.TTF), which is the font used in the original design (you'd really have no way of intuiting this). Even places such as What the Font would have a hard time divining the font used in this small GIF file. You install a font merely by double-clicking on it to preview it and then clicking Install. To improvise here, I chose to install Kabel Bd (TT0166M_.TTF). Choose a typeface from the installed fonts list (you *don't* have to restart DRAW when you install a font while it's running), and choose the Kabel font. You can see in the following illustration that a real font is much better than the traced one.



7. Repeat Steps 3–6 to create the word PIGMENT to the top of PALS.
8. Because text along a curve cannot be directly filled using the Eyedropper tool, do this:

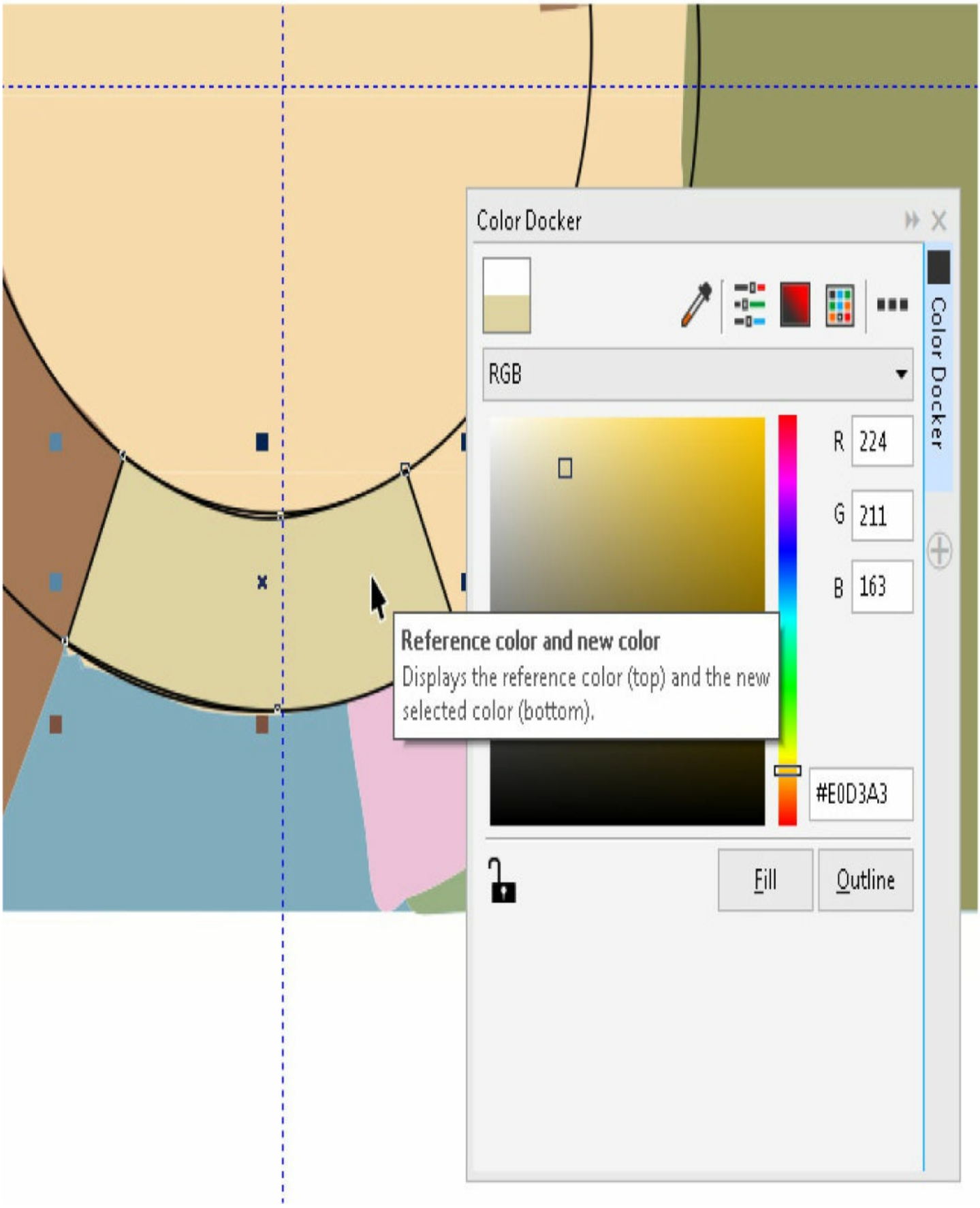
create a circle or a rectangle, and then sample and apply the original text color to the circle or rectangle. The color is then added to the document palette (the short string of swatches at the bottom of the interface). You can delete the object you created to fill now.

9. Select the text and then click the swatch on the document palette. This fills both the text *and* the circle that it is bound to. No problem.
0. CTRL-click over the circle to select it but not the text. On the color palette, first left-click the "x" swatch (the "no fill" swatch) and then right-click the x to remove any outline color or width.
1. Seriously consider pressing CTRL-S and naming your file at this point. Don't close it; there's one more set of steps.

I was personally not happy with the overall design. I felt an additional arc with a unique color would finish off the design. The location of this new element can be seen in the illustration to follow. Here's how to make much more money with an assignment such as this one, and don't laugh. It's common knowledge that if a company makes more than $1,000 a year, they know nothing about logos.

Get out the Ellipse tool and let's go:

1. Drag a circle from the center of the arcs until you reach the innermost arc at the bottom of the design.
2. With the Pick tool, drag and drop this circle at the next outer ring of the bottom arc; see the following illustration for a visual description of this.
3. With the Pen tool, trace an area that matches both the top and bottom arc and that butts against the left and right shapes using a straight line.
4. With the closed shape selected, choose Window | Dockers | Color.
5. Fill the shape using any color you like. For the moment, it's okay as long as it's filled. Filling a shape a second time is easier than filling an empty object.
6. Pick a nice color from the HSB field and Hue slider and then drag and drop the "after" swatch at the bottom of the two-color onto the object to be filled on the page.



7. Clean the drawing up by deleting guides and unnecessary objects—that sort of stuff. Figure 20-8 shows the finished trace. Although it's partially automatic, it shows off an

awful lot of your newfound skills too.

FIGURE 20-8 **Use different techniques and approaches to make a great vector logo from whatever a client tosses your way.**

PowerTRACE for Traditional Artists

Many different types of users are attracted to CorelDRAW. Logo and other graphics designers are one category of visual communicators. However, CorelDRAW's tracing feature also appeals to artists who come to the digital world of illustration after years of work with physical pens, pencils, and inks.

If you have a scanner, and have, for example, a pen and ink cartoon, PowerTRACE makes child's play out of re-creating your cartoon as scalable vector art, to which you can apply color fills with a smoothness and precision that enhances your cartoons and can elevate them to the status of Fine Art. Seriously!

Cartoon sneaker drawing.png is a fairly high-resolution scan to get you started with a specific workflow you can adopt with scans of your own drawings. One important issue is removing pencil or other marks on the physical paper before you scan; use a kneaded eraser, and even if the paper doesn't come completely clean, the following steps show you a novel way to use PowerTRACE to remove stray marks.

Here's how to create a digital cartoon suitable for exporting as either vector or bitmap art to any size you need; this is a perk you don't have when working with only physical tools.

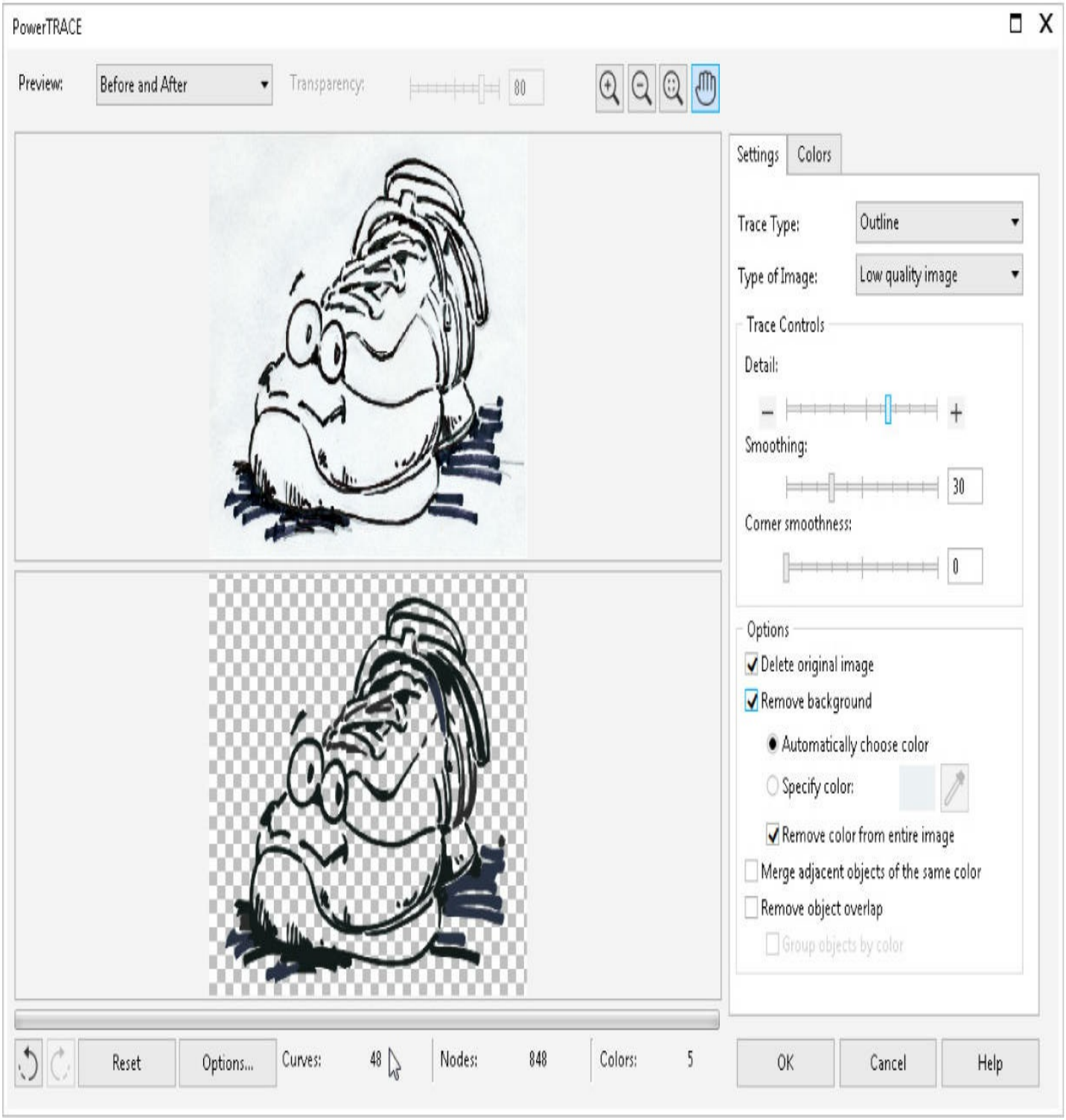
Digi-tooning

Tutorial

1. In a new document, select Landscape orientation, click the Import button on the Standard Bar, and then choose Cartoon sneaker drawing.png. Place it by click-dragging the loaded cursor so it fills the page.
2. Click Bitmaps, and then choose Outline Trace | Line Art.

Note Occasionally, you'll receive an attention box stating that the bitmap size is too large and that, if you choose not to resize the bitmap, the trace process might be on the slow side. This is your artistic call: if you want the pen strokes to look extremely faithful to the author's original cartoon, click Keep Original Size. If you're in a hurry, click Reduce Bitmap.

3. In the PowerTRACE window, choose a medium amount of Detail, about 25 percent Smoothing and no Corner Smoothness, check Remove Background, and then click the Colors tab. Set the number of colors to **2**. Doing this generates almost entirely black objects with the exception of one or two areas that are totally enclosed, which should produce a white fill inside a black object. Check Remove Color From Entire Image to get rid of superfluous white areas. To make the dark areas truly black, choose the Colors tab and click on the almost-black color. Click Edit, and make R, G, and B equal to zero for a pure black. Check Delete Original Image, click OK, and you'll see that the pencil marks that are not entirely a black color disappear from the trace.



4. Choose Window | Dockers | Object Manager. Create a new layer and then drag its title on the list to below Layer 1. You can rename these layers **Coloring** and **Trace** by clicking to select the name and then clicking a second time to open the title for editing—type anything you like in the field. Lock the tracing layer.
5. Using the Pen tool you're most comfortable with for creating free-form shapes, create objects that represent the different areas of the cartoon you'd like to color in. For example, the treads of the sneaker would look good in several different shades of warm gray. The solution would be to use the Mesh fill on this object you draw—see

Chapter 15 for thorough documentation of object fills. The top of the sneaker could be an interesting Linear Fountain fill, traversing from deep orange at the bottom to a bright yellow at the top. Another great thing about coloring your work digitally is that you never have to decide on a final color.

6. You continue this process until you've "colored inside the lines" and filled as much of the drawing as you see fit artistically. You can see a logo mockup in Figure 20-9 for a

children’s footwear store. Clearly the drawing has an organic sense about it—the opposite of the sterile and flawless “computer art” we see occasionally—and yet this is CorelDRAW computer art, with a little ingenuity added to create a symbiosis between the physical and traditional elements.

FIGURE 20-9 **Make a hybrid drawing from traditional ink to digital fills in CorelDRAW.**

You can take a look at how this drawing was completed if you open Sneaky kids finished .cdr.

This chapter has been an introduction to how imported bitmaps can happily coexist and help enhance your vector work in CorelDRAW. As you move on to Chapter 21, you're going to graduate to *Advanced* Bitmap Editing. Corel PHOTO-PAINT doesn't get all the attention it really deserves; it's indispensible for photo retouching and exporting animations—if it's pixel-based, it's PHOTO-PAINT. Come see how great image editing enhances your overall skills as a CorelDRAWing kinda individual.

21 Common Image-Editing Techniques Using PHOTO-PAINT

Photography tells a different story than the vector graphics you create in CorelDRAW. Although vector drawings can look crisp, powerful, and brilliant in coloring, photographs typically mirror more of a literal human story. Digital images deliver emotional content through soft tones, an intricate latticework of highlights and shadows, and all the photorealistic qualities that portray the world as we're accustomed to seeing it. Understandably, the tools you use to edit a digital photo or other bitmap image are different from those you use to edit paths in CorelDRAW. This is where PHOTO-PAINT enters the scene to round out your creative toolset.

This chapter introduces you to the fundamentals of *bitmap images*—how to measure bitmaps, how to crop them to suit a specific output need, and ultimately how to make your original photo look better than when it came off the camera.

Note Download and extract all the files from the Chapter 21.zip archive to follow the tutorials in this chapter.

The Building Block of Digital Photos: The Pixel

We all use the word occasionally in a humorous context in conversations, but seldom is an explanation or *definition* of a pixel provided in a way that is useful when you need to alter a digital photograph. A *pixel*—an abbreviation for *pic*ture *el*ement—is the smallest recognizable unit of color in a digital photograph. It is *not* a linear unit of measurement; a pixel doesn't have to be square in proportions, and it's not any specific color. Now that you know what a pixel *isn't*, read on to learn what a pixel *is*, and how understanding its properties will help you work with PHOTO-PAINT's tools.

Pixels and Resolution