Mephistopolis Noir

Noir

20th Century & News-Herald

DAX Studio Shader
By Eustace Scrubb

Credits

I'd like to credit many friends, both online and off, artists and otherwise, without whom this project would have been impossible:

My good Creator and Redeemer, Jesus Christ, whose art I am and without whose imprint I cannot create a thing. My dear, and very long-suffering, wife who keeps at me to get my projects done (so as to spend time on her, of course).

My development and consulting team, known only by their anonymous handles on the 3D fora, some of whom beta-tested and some who just gave advice, encouragement, or code snippets (the latter are credited appropriately within), or inspiration:

- **Agent_Unawares**
- **AgeOfArmour**
- BagginsBill
- BelovedAlia
- BishounenTaurus
- DollyGirl
- JakiBlue
- JesterVII
- **JustTheBast**
- LuxCompagno
- Pendraia
- Richard Hazeltine
- **RKane_1**
- SassyWench
- **Zigraphix**

Thanks also go to the rest of my friends and correspondents on the DAZ-3D fora, and to the artists living, dead, and obscure, whose work inspired this project: Stan Lee, Rachel Stahl, Roy Lichtenstein, J. R. R. Tolkien, El Greco, N. C. Wyeth, Howard Pyle, and many more, like the anonymous painters of pulp magazine covers. Stuart Immonen is also worth mentioning.

Plaid textures used in the Tartan presets included in this package are taken from swatches found at http://resources.scottishtartans.org/ as a Fair Use and/or Public Domain resource and out of copyright.

# Contents

Why *Mephistopolis*?

Mephistopolis is a bold new shader set for DAZ 3D's flagship software, DAZ|Studio. While other shaders compete to give you the most pristine, the most subtle, the most photo-real version of your subject available, *Mephistopolis* does little of that. While other toon shaders exude sweetness and light, evoking childhood joys, the tones of *Mephistopolis* are stark, bright like naked bulbs, and hard. These may be the colors of the pulp magazines behind the counter, or your uncle's box of *Thrilling Tales* in the back of Gramps' garage. This is Noir like you remember but like you've never seen it before.

The name "Mephistopolis" is from "mephitus", or malodorous, and "-polis" for "city". It alludes to Faust's devil Mephistopheles, named "lover of foulness" as well as *Mephitus Mephitus*, the Striped Skunk. It translates to "Skunkville", and it might be any city, anywhere. From *Red Harvest*'s Poisonville to the City of Angels in *The Big Sleep*, and from Mickey Spillane's New York to *The Untouchables'* Chicago and Walker Percy's Feliciana Parish, or Clark Kent's Metropolis and the Lantern's Coastal City. It is a symbol and symptom of the modern world. And in this case, it is a versatile, all-procedural[†] shader package to replicate dot-printed comics and newspaper images. (I have discovered that it's also the name of a horror book trilogy by one Edward Lee, and another book by Mr. Keith Planit: their work has no bearing on or direct connection to mine.) This is not the only comic-book shader or pop-art shader on the market, but it is the first comprehensive toon shader package built on actual color models and true materials raytracing, with map tiling, crisp outlines and integrated opacity. And it is the only one built from the beginning with backwards compatibility to DS3 in mind.

The *Mephistopolis* shaders are versatile, easy to use, and render quickly. The properties follow those of the DAZ|Studio Default Shader, and are set to allow you to copy and paste material settings from any standard shader into it. **In DS3 and 4.0 you will need to copy each material's** **settings before applying the shader base: this is a drawback of Shader Mixer materials in older versions.**

I endeavor to make these shaders, and this
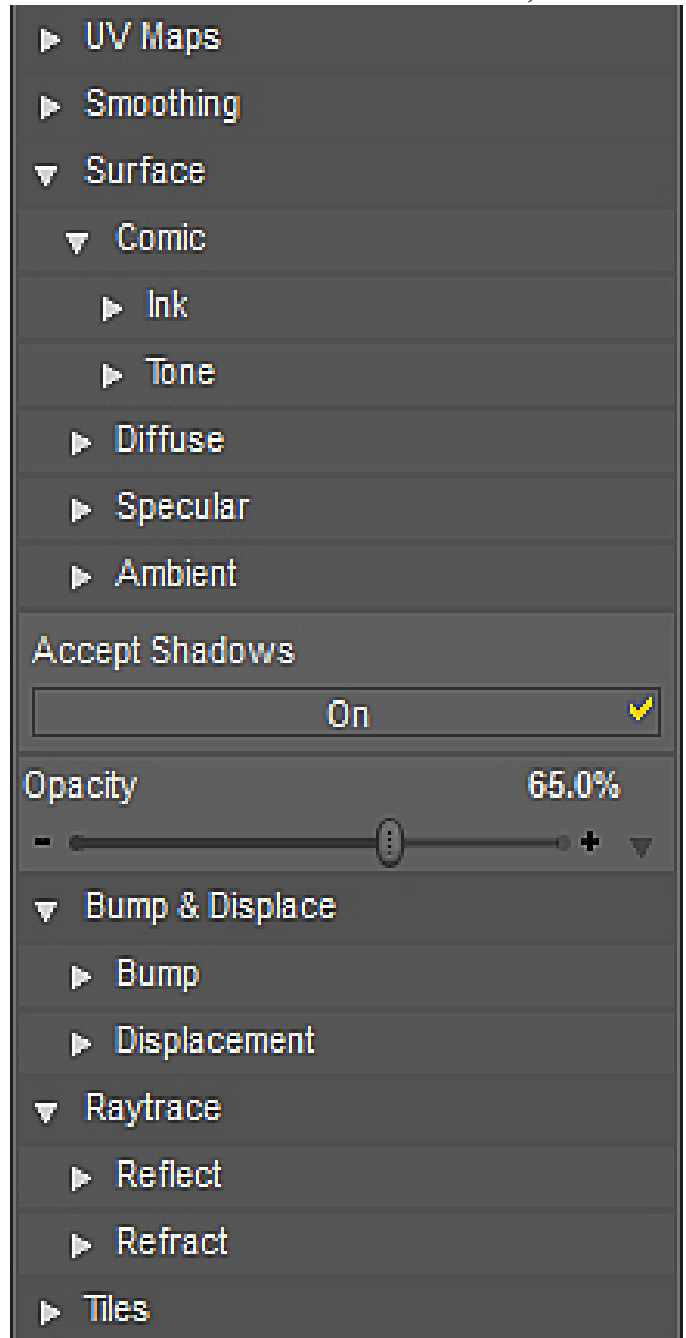
documentation, as user-friendly as practical, so if I seem to be telling you what you knew already, or preaching to the choir, just say "Amen!" and we'll move on.

[†]Tiled plaid materials use images in the Eustace/Tartans directory of your textures folder. No other image files are required or called.

Rules for Use

All of the contents of this shader package, including algorithm, presets and documentation, are the work of Josh Griffing, alias **Eustace Scrubb**, and he retains intellectual copyright to them. The images and diagrams herein are also his own work except where noted.

Due credit has been given, or at least tried, for all quotes and images by others, and all portions of the code which I have built on other artists' equations. Because the Shader Mixer plug-in does not compile the shader code, early presets contained the entire algorithm. This was true not only of my own presets, but of all of the presets made from the code. **User presets made in D|S 4.5 or higher may be distributed as-is: those made in DS3 must be encoded against the original files. DUF versions, compatible with D|S 4.5 and above, use a single resource file for each shader, to conserve disk space.**

As long as you encode against the original files (please be explicit as to which files you use as keys), you may sell your own *Mephistopolis* presets. You will not be bootlegging my work, for the simple reason that only those who already own the key files can decode the add-on product. So go ahead and set what price you will.

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Setting Up The Shaders

DAZ|Studio 4.5+: Switching between the *Mephistopolis* shaders could hardly be easier: just a click on the icon, and the selected surfaces are changed from *20th Century* to *News-Herald* or back. All your settings are preserved: outline colors, depth cue parameters, even tiling and refraction. The code is set up to swap almost seamlessly with the DAZ Default Material (or **omniFreaker**'s UberSurface shaders to a lesser extent).

D|S 3.1: The shader system in 3.1 is less

accommodating than in 4.x, but the shaders still work as ordered. It just takes a little longer to switch them over. Apply them one material at a time, as follows:

1. Save your existing scene first. Always save your scenes and projects regularly.
2. Select the material to switch shaders on in the _Surfaces_ tab. At the bottom of the tab, click **[Copy]** to retain the current values.
3. Under _Scene_, or in the workspace, select the figure or node whose surface you are re-shading. (D|S 4.x does this when the surface is selected.)
4. In _Surfaces_ again, select all surfaces you wish to apply the copied settings to.
5. From the _Content_ menu, select _Shaders » ! Mephistopolis Liquor and Lead » 20th Century.dsb_ or _Shaders » ! Mephistopolis Liquor and Lead » News-Herald.dsb_ as you prefer. Wait for it: if you have more surfaces to change than you have RAM to change them with, it may take a minute or so.
6. When the change is complete, the color of the surfaces will be pale and nondescript, but all affected surfaces will still be selected.   Click **[Paste]** under _Surfaces_. Based on the number of maps, et cetera, this may take even longer than the last step.
   a) If all else fails and you are forced to restart the program, just re-open the scene and conduct the above steps one material at a time. This is not always necessary, and is a pain in the keister for complex figures, but sometimes that's what it takes.
7. Adjust settings. Save your work again.
8. Repeat as necessary.

Note also that the effects you see in DS3 may not be quite the same in DS4, because they use different versions of 3Delight. In DS3 the Ambient channel is strong enough at 100% to actually color the shadowed side of the mesh, despite Diffuse or Specular input. The DS4 renderer already pushes hues toward saturation, as much as doubling the saturation of certain tones, and darkening the overall effect.

If the basic shaders are applied (in DS4) over any shader using standardized values, the basic settings should not be affected. On the other hand, if you need to switch from one to the other, it's almost a direct conversion: even the ColorMode value will be transferred (RGB becomes B&W, and HSI becomes Sepia. If you apply a _20th C._ preset onto a _News-Herald_ surface, it will not retain the _News-Herald_ shader under the new values, or vise versa.

If the HSI in _20th C._ does not seem to be working—if all of your textures are black and heavy, look at the **Diffuse** color. You may have attempted too dark a color altogether. If your baseline material value is too dark for your light setup, you _will_ render flat black in pure HSI mode. In the handling of darker colors, _News-Herald_ is unequivocally worse: both color modes render too-dark objects in solid blackness. It is a Noir shader, after all.

If your color is too pale, too washed out, it will render in Back and White in _20th C._'s HSI mode: it will look exactly like the Sepia mode in _News-Herald_ when the **Sepia** value is white. Here intensity (rather, the lack of it) is greater than

Surface Properties

In the *Mephistopolis* shader interface, I have sought as nearly as possible to keep things simple and familiar. Most of the color values are mappable, and both Bump and Displacement are accounted for.

The following properties will be familiar to anyone who uses the DAZ|Studio Surfaces tab to any extent. They are wired to do exactly the same things and relate to one another in exactly the same ways.

- **Diffuse** is mappable: it is still the base color for your mesh's surface. This will show up, as always, on the OpenGL preview in the program.
  - **Diffuse Strength** is also mappable: it calculates a float percentage and multiplies the value of the **Diffuse** channel thereby. I left this mappable specifically for localized **Diffuse** effects like tattoos, but unlike the DAZ Default Material, tattoos will present in gray-scale *only*. For color tattoos use the Image Editor or Layered Image Editor on the **Diffuse** texture itself, or use an outside program (DS3 users).
- **Ambient** is mappable: as usual this is the "base" material color where the light does not reach.
  - **Ambient Strength** is *not* mappable. The DS3 version of 3Delight handles the channel blending differently than does that in DS4.x, so users in DS3 may find a lower **AS** value necessary to achieve the desired effect (the default value is 100%).
- **Specular** is mappable: this is the default highlight color of your object, when it is seen in white light.
  - **Roughness:** Essentially the surface grain and coarseness of the surface, as it affects light scattering. A higher value (1 is default) results in a smaller highlight. Lower values spread the highlight. Enough like **Glossiness** that many shaders leave it out, but what's Noir without a little unnecessary **Roughness**? Not mappable.
  - **Glossiness:** Not mappable. The sharpness of the highlight on your object.

Not quite the same as **Roughness**, as it deals more with the sharpness and intensity of the highlight, but again, a high number yields a small highlight.
  - **Specular Strength** is not mappable.
  - **Multiply Specular through Opacity:** This button comes standard. Turn it off to allow highlights on transparent objects.
- **Opacity:** Exactly what it says. A mappable percentage of a material's opacity at any given point. In contrast to other toon shaders, partial opacity does not ghost backfacing polygons in the outline color. Because the opacity is generally mapped from the whole mesh, this is the only mapped value that does *not* tile.
- **Accept Shadows:** Because every once in a while, looming figures leave you in the dark.

These are the basic surface settings in the user interface. They are fairly straightforward 3Delight material properties and work the same way, basically, in any correctly-configured Renderman shader. The next parameters are also basic to the complete D|S shader, but affect the shape of the surface, rather than its color.

- **Bump:** This mappable parameter provides surface irregularities without deforming the mesh itself.
  - **Negative:** The depth of bump-mapped irregularities below the surface.
  - **Positive:** The height of bump-mapping above the surface.
- **Displacement:** Functions rather like **Bump**, but distends the mesh surface at render time according to its map.
  - **Minimum:** The lowest distortion into the surface of the mesh by **Displacement** at 100%.
  - **Maximum:** The highest extension of the mesh surface by **Displacement** at 100%.

The **Tiling** functions are not grouped among the surface functions because they affect all maps equally, except **Opacity** as noted above. My thanks go to **Zigraphix** for working out the tile

rotation sequence in the Shader Mixer tutorial.

- **Horizontal Tiles:** Texture map iterations across the mesh's UV map from left to right.
- **Vertical Tiles:** Texture map iterations across the mesh's UV map from left to right.
- **Horizontal Offset:** Portion of whole tile width to shift texture left or right of UV center.
- **Vertical Offset:** Portion of whole tile height to shift texture up or down from UV center.
- **Pattern Angle:** Texture rotation angle in degrees: -180º to 180º.

Raytracing

The casual user will find many more properties listed for Reflection and Refraction in the *Mephistopolis* shader interface than in most other general-purpose shaders. This is by design, because I wanted to make the most of the ray-trace capabilities of the 3Delight renderer. You will also see that the **Reflection** and **Refraction** channels are not mappable, constraining them to true raytracing.

- **Reflection Color:** The color by which the reflected scene image is multiplied. Reflected rays bounce off surfaces and do not penetrate to the interior of the mesh. Not mappable, because I dislike mapped reflection.
  - **Reflection Strength:** As it says—the reflective strength of the material.
  - **Reflect Distance:** The length of the reflective ray, from bounce point to furthest reflected object. So it's just an incredibly long vector....
  - **Reflection Cone:** This is the angle of spread for the raytrace: from a single ray (0º cone) all the way out: the end result gives an average reflected value of everything within the cone. Cones overlap each other and the resulting reflection will be blurred accordingly.
  - **Sample Reflection:** Number of mesh collisions to calculate reflection from. The reflection of a reflection requires at least one sample per mirrored surface. Mutually mirroring surfaces will need a high SR_1 value.
  - **Reflection Bias:** Offset of the reflection

from the reflecting mesh. The default is -1 to simulate the depth of a mirror's glass, but bare polished metals should be biased at zero.

- **Refraction Color:** Color multiplied into refracted scene. Refracted rays are those *passing through* an object's interior: thus it is rarely used with 100% **Opacity**. Not mappable.
  - **Index of Refraction:** As advertised. Default is 1.0 (no refraction /air).
  - **Refraction Strength:** The strength of the material's refraction.
  - **Refract Distance:** Distance to the furthest refracted point in the scene.
  - **Refraction Cone:** The same concept as the **Reflection Cone**, now applied to **Refraction**.
  - **Sample Refraction:** Number of meshes through which a traced ray can refract before it reaches the camera. Each side of a thickened glass is a new sample, so for this image, the glass took two samples, plus one each for the drink and the ice cubes.
  - **Refraction Bias:** Again, offset of the refraction from surface. A bias of 0.0 should be adequate for most cases.
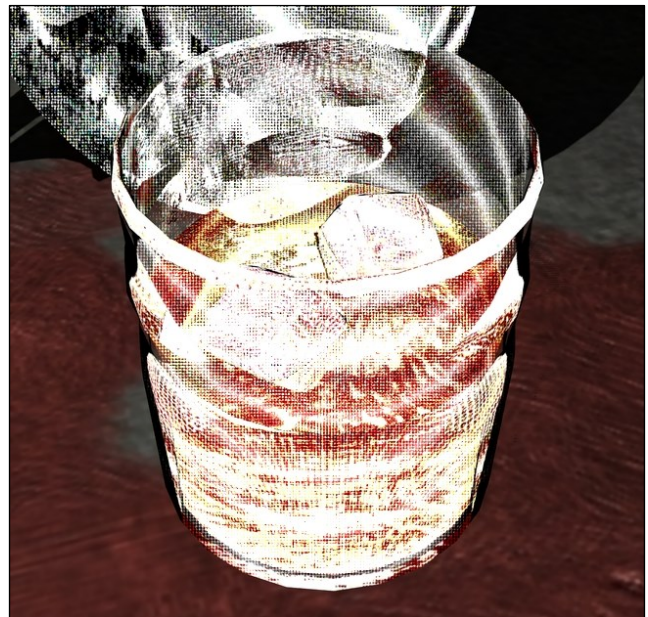
Comic Effects

At the heart of the *Mephistopolis* shaders are the comic effects that change the ordinary surface's appearance into a vivid comic-book or newsprint panel, or eye-popping pop art. The dot-print filter, first published by **JustTheBast** on the DAZ3D forum, screens each of the component layers of the surface material color so that each layer is presented in pure dots on white. The color mode filters set the dot sizes by the value of each layer at the given point, and the layers are overlaid in a representation of the original value, like the layers of colored ink applied to a page. All of the regular surface settings pass through the dot filter, including **Opacity**.

The outline of the object is at first glance an ordinary 3Delight toon outline, based on the mesh's normal angles. But the *Mephistopolis* outline is sharper and crisper than others, without **Opacity** interference. I've also applied a depth-from-camera modifier (based on a code snippet uploaded by **Agent_Unawares**) to enhance nearer objects' lines and thin those in the distance.

• **Outline Color:** The color of the material's outline. It also picks out the details of **Bump** and **Displacement** mapping. This is the *only* color which is not dot-filtered before rendering.

○ **Outline Threshold:** Width of the outline, as seen in many toon shaders.
○ **Depth Cue:** Percentage by which the depth to the camera affects outline width. Default is zero.
○ **Minimum Distance:** Start point/near end of depth-cue calculation range. Defaults to zero, ostensibly at the camera.
○ **Maximum Distance:** This is the outer end of depth-cue range. Ideally, this is the furthest mesh point in the scene.

The tone parameters define the settings for the dot and toon filters. This is also where the shaders diverge, and the shining tones of *20th Century* make way for the

• **Clamps:** Divisions of the surface by light level.
• **Clamp Blend:** Percentage of smoothing or sharpness at clamp interface.
• **Dots Off:** Switch between dot filtering and solid-color swatches.
• **Dot Density:** Spacing on center of dots, as a fraction of screen raster height. Default is 100, such that each dot occupies 1% of the height of the user's monitor. This is updated from the initial release, in which basing the number on the render size frequently resulted in unwanted *moiré* banding across the surface. Because of a fix to the dot algorithm, *moiré* effect is now negligible.
• **RGB to HSI:** The ColorMode switch for *20th Century* adjusts the color blend between **R**ed-**G**reen-**B**lue and **H**ue-**S**aturation-**I**ntensity filters.
• **B&W / Sepia:** The ColorMode switch for *News-Herald* adjusts the blend between the **B**lack **& W**hite mode and the **Sepia** duotone mode.
○ **Sepia:** In *News-Herald*, this is the duotone ink color. Like the **Outline Color**, the **Sepia** color is not filtered and has no part in the dot-filtering calculation.

All of the Color Mode filters are derived from the output of the DAZ|Studio material described above. The coverage of the *News-Herald* **Sepia** layer uses the minimum value (RGB base) at the given spot. The black layer in News-Herald **Sepia** is identical to the **I**ntensity layer in *20th Century*'s **HSI** color mode.

Geometry Shells

One of the oldest and simplest methods in 3D art to simulate an inked or hand-drawn outline around a mesh is by "geometry shell" outlines, duplicates of the original mesh which are transparent to the viewer and opaque behind the mesh. This two-sided "shell" then follows the mesh as needed through the scene setup and over the course of the animation, if any. Because the Geometry Shell and the interior mesh are smoothed at the same rate, this gives a generally crisp, uniform outline to the figure.

That's the concept behind (pun intended) most Geo-Shell outlines. The visible portion of the shell is the interior, behind the outlined mesh. The *Mephistopolis* Geoshell is an overlay, rather, as though you rendered the same scene in its usual shaders and then once more in *Mephistopolis* just for the outlines and highlights.

The outline provided by the geometry shell is the shell's *own* toon outline, using the same *Mephistopolis* base shader as any other preset in the library, with a hint of dot-filtering to overlay the shader beneath.

Warmest thanks to **BelovedAlia** for the idea and the recipe, as found in all the GeoShell presets. As she put it, "*Sometimes in postwork I like to do a blend of a 'realistic' shaded image, and a toon shader image, but using the shader on Geoshell gives an excellent blend of the textures and shaders without needing any postwork!*" And thanks as well to **AgeOfArmour** whose two-sided shader code fixed a significant flaw with the **Opacity**.

Metals and Gems

When working with metals, gems, glass, or any other material that employs reflection or refraction, or both, you will have to be particular in your color choices. The **Reflection** and **Refraction** colors will have as much effect or more on your final render as **Diffuse**, **Ambient**, and **Specular**. In fact, a metal's **Reflection Color** will modify its **Specular Color** in about the same way that **Ambient** modifies **Diffuse**. A good mix of light and dark tones are recommended for strong contrasts in refracted materials, and to get the clearest glass, set **Opacity** to almost 0.0%, the **D/A/S** values (**Diffuse**, **Ambient**, and **Specular**) to dark tones, and refraction all the way up to white and 100%. A paler **D/A/S** set will give a more firey gemstone, but less visibility through it.

New to the Christmas 2014 update of the *Mephistopolis Noir* are the Birefringence shell shaders. The quality of birefringence, found in most gemstones (diamond is a notable exception) is the concurrent presence of *two* indices of refraction in the same stone. The difference between these two IORs is the stone's birefringence angle. To duplicate this effect, apply a Geometry Shell to the stone in question and set the shell offset to 0.0 to colocate the mesh. (DS3 users, overlay and parent another copy of the gem.) Apply the first Jewel shader to your original mesh, select the shell mesh and its surface, and apply the Birefringence version. Note that while the colored gems each have a Birefringence analogue, neither Diamond nor Melanite has one, because diamond has only one IOR and melanite, a rare black garnet, is actually opaque (I have set the shader opacity to 75%). If you use one of the colored stone shaders *without* its corresponding birefringence shell, please increase the opacity value from 7.5% to 10% (DAZ|Studio 4.7 users; other versions as needed) to produce an optimal balance of color and clarity.

Metals and other reflective surfaces are much the same. For a good shine and mirroring on

your metallic surfaces, use a bright **Reflection** color and high **Reflection Strength**, but a darker **Diffuse** color. **Specular** may still be pale, but too much shine may disrupt the reflections. Metals need a very low refraction value, if any at all: in 3Delight (and real life) the refraction addresses light as it passes through an interior. Too high and bright a refraction will show you the interior shape of an otherwise opaque mesh: I know, because I've tried it. I'm sure it would be very useful somehow, but I don't have any use for it.

Using the Depth Cue

The Depth Cue feature modifies the width of the outline according to the object's distance from the camera. Using **Agent_Unawares**' tidy depth shader snippet (available on line), one may enhance the foreground outlines and diminish those in the background. Its best use is for large props, sets, vehicles, and figures that extend significant distances into the background, so that the diminishment of the line may be seen. When the viewer's line of sight is roughly parallel to the surface of a mesh, the Edge-Blend-based outline seeks to incorporate it into the outline. This is often undesirable, when we wish to see, for instance, the colors of the bricks or the lettering of the posters on a wall, or the goods behind shop-windows. The concept is based on the Inking Rule, as expressed by comic artist **RKane_1** on the DAZ 3D boards: "*General rules of inking include objects closer to the viewer should be more heavily outlined with greater line variance. Objects in the background should have a thin line around them and little line variance.*

"*Line weight (i. e. Thickness) should be greater on the side of the object with the greatest amount of shade.*"

It may take a couple of minutes to find just how deep the geometry of your scene is, in meters—the radius of your skydome is a good place to start but only if you are using one. Set the **Maximum Distance** just a little inside of the skydome, or a little beyond if you need outlines to cross it. The **Minimum Distance** is assumed to be at the camera, defaulting to 0.0 meters from the viewpoint of the render, but may be adjusted as necessary. When the render is completed, the objects at **Maximum Distance** or beyond will have no outline left at all (at 100% **Depth Cue**), and the foreground will be inked in bold relief.

Line-Art Illustration

This is where the *News-Herald* shader comes into its own. With **Dots Off** at 100%, the **Sepia** shading traces the inside of hard black line

and stark shadows. For unshadowed outline, lay out the material colors in pale tones and use a white or a pale gray **Sepia** ink, and set the ColorMode to Sepia to minimize the black shading. When a gray duotone is required, *do not* rely on the HSI ColorMode on *M. 20ᵗʰ Century* with gray materials: it will give false-color results. Use *M. News-Herald* with a gray **Sepia** at 100% Sepia ColorMode, or black at 50% ColorMode for a more nuanced spread.

The purpose of the *News-Herald* shader is to illustrate without the complex color palette of *20ᵗʰ Century*. This may be either to emulate old photos, to give black-stippled illustrations a stain of interest, or to translate the look of brilliant textures into black-gridded images from the back pages of newspapers. It is useful also for background sets and figures, to compliment and accent the effect of *20ᵗʰ Century*'s distilled colors. I encourage you to play around with the settings

and develop your own shader presets for whatever style you prefer.

The *News-Herald* presets in this package do not affect the **D/A/S** settings, but portray the selected materials according to the *News-Herald* parameters described.

Plaid and Tartan

A brief word must be said about plaids, tartans, and other tiled textures. I have included a sampling of Scots clan tartans among the presets in order to demonstrate the tiling options. They may render too large a check for your purposes, or more likely, too small: most well-mapped garments should need very little adjustment in scale. But if you find it necessary, adjust both Horizontal and Vertical tiles proportionately. Some of the tiles do not tile as well as they ought, because they were cropped from photos of actual tartan weave, not some ready-made texturing resource. This is also why the Buchannan pattern is twice as long as it is high: it was the best way to crop it to tile effectively.

All of the plaids were cropped from swatches at http://resources.scottishtartans.org/ as an explicitly Public Domain resource and free of copyright.

Roy & Other Questions

I am not going to call this "Frequently Asked Questions," because nobody's asked most of them, and most everyone's got a "Frequently Asked" list. Maybe with Walker Percy, I could call it *Questions They Never Asked Me*, but that's been taken by my betters. So these are the questions that *I* might ask, buying a set like this, as well as what others occur to me:

1. **Can I recreate a Roy Lichtenstein print with these shaders?**

   a) No, you cannot. Not one you could pass as the Real Thing anywhere. For one thing, Lichtenstein's art had no ambient or specular effect in non-reflective surfaces, and no issue with moiré banding. For another, most of his dots were laid out in a honeycomb grid, with intersecting lines meeting at sixty degrees of offset, while *Mephistopolis* uses a grid of rows and columns at right angles to one another. That being said, the presets included for the *News-Herald* shader are based explicitly on the palettes of Lichtenstein's comic panels.

2. **Who is Rachel Stahl?**

   a) She was an art student a year ahead of me in high school who did three or four large pieces approximating Lichtenstein's style.

3. **Who is John Galt?**

   a) Who cares?

4. **What is the air-speed velocity of an unladen swallow?**

   a) What do you mean, an African or a European Swallow?

5. **How can I make my render look like a photograph?**

   a) Use somebody else's shaders. These are made to look like a comic book.

6. **Did you get the idea from the *Manga Style* shaders by BishounenTaurus in the DAZ3D store?**

   a) He beat me to the market, for various reasons, but this project was underway before BT ever released his early *Visual Style* set. And no, I did not borrow any of his code, either.

7. **If I make a bestselling comic-book with this, are you going to sue me?**

   a) No, but I just might buy a copy. I'm fairly choosy about what I read, both comics and books, so make it good, and tell a good story well.

8. **Why do you make Noir shaders?**

   a) I admire the art style of the pulp magazine covers from the 1940s and '50s, and enjoy good comic books and detective stories like the Continental Op of Hammett's *Red Harvest* or Philip Marlowe from *The Big Sleep.* These stories and images are what I seek to evoke with the shaders. I made my first Noir shaders—presets for D|S 1.5's toon plastic shader back in 2005 when it first came out—and continued with Poser 5 and 6 procedurals after I got a deal on P6. All of my early shaders are available on my ShareCG gallery.

9. **But why *noir* at all? It's so dark!**

   a) In two words, Original Sin. The Noir or "hardboiled fiction" genre is about the only modern genre that acknowledges the universality of the human capacity for evil and looks it in its eyes. Then, sometimes of course, it doesn't know what to do with the beast once it's seen it. Read Chesterton and O'Connor.

10. **Sinead O'Connor?**

    a) No, Flannery O'Connor. Start among her short stories, like "A Good Man is Hard to Find," or "Everything That Rises Must Converge," or maybe "Parker's Back." Then read her novel *The Violent Bear it Away*.

11. **Wasn't she, like, a female Erskine Caldwell?**

    a) Don't talk to me about that old carpet-bagger.

12. **Why don't the colors show up in my *News-Herald* renders?**

    a) Because that is not its purpose. In case you skipped that page, the *News-Herald* shader is a monochrome and duotone shader, solely and exclusively.

13. **Is there a way to change the color of the black dots to match the outline color?**

    a) Yes, but unfortunately, it's called postwork, because the *Mephistopolis* shaders themselves are not set up to do that. Black is black is black.

14. **Isn't what you call "RGB" ColorMode in**

20th Century **actually a CMY mode?**

a) Yes, but CMY = -1 x (RGB). There's really no difference at the computer-artist's user level. CMY (and CMYK) are actually based on printing ink on white paper, and that's the effect I was aiming at.

15. **Why isn't there a CMYK mode in the** *Mephistopolis***?**

a) Maybe next time. It's not a very difficult algorithm.

16. **My reflections take hours and hours to render. What can I do now?**

a) Go get some lunch, and maybe catch a movie. Spend some time with your family and kids. They'll thank you immensely for it. And by the time you get back, your render will be at least a little further along. Essential to any raytrace is the ray's endpoint: it's the color that 3Delight bases the final color of the pixel on. So never, *never* attempt a refraction in front of—or reflection that faces out into—empty 3D world-space. Skydomes or worldballs are cheap enough, in dollars and RAM load, that you're just wasting render power not to use them in need. Sample size—the number of mesh interactions the ray is permitted before its final collision—is critical, because with each mesh interaction, the renderer calculates a new value for the ray, and each equation takes time. The milliseconds add up.

17. **Why does DAZ|Studio lock down when I use reflections and refractions together in glass?**

a) It's probably not *locked* down, just *bogged* down something fierce. It has too many ray samples to whip out a quick little pocket render. See the answer above: you didn't set both ray functions at 100%, with traced shadows, did you?

18. **Sometimes, merely trying to render my scene makes DAZ|Studio crash entirely. Why does it do that?**

a) I assure you that you're not alone, but it's not my shaders doing it. I'm not DAZ or Windows tech support, so all I can advise is to save your work frequently. Sometimes it's caused by glitches in the program code, and sometimes Windows just likes to "free up memory" for the applications you aren't using at the moment by shutting down the ones you are. Or are you using fiber-hair presets on an off-the-shelf laptop like mine? Tell me, how did you get all the way to Ctrl+R before it finally collapsed?

19. **Why don't my textures tile in D|S3?**

a) The tiling effect is not visible in the OpenGL preview for DAZ|Studio 3, but the texture *will* be tiled in the render. Do not worry about that. Likewise, the rotation of the tiles does not show up in the preview on either version, but will render correctly in either program.

20. **Where has this been all my rendering life?**

a) I don't know about *the whole* of *your* rendering life, but the germ of this has been banging around between my ears for most of mine, and that's been a few years now. I had the idea: until I saw the first dot prototype **JustTheBast** published on the old boards I just didn't have the key piece to make it a reality. Now that reality is in the palm of your—well, it's here on your hard drive, anyway.