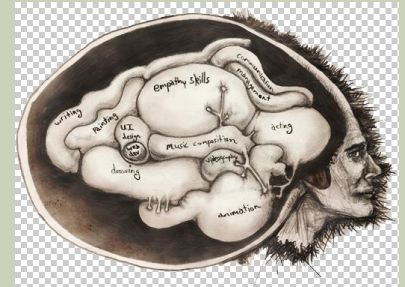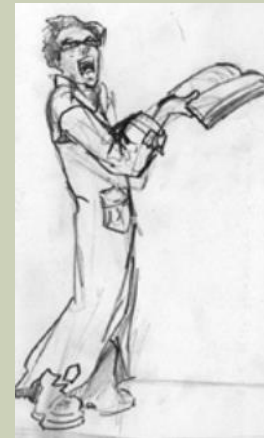# VISUAL PERCEPTION AND

YOU!

Making games that look nice...er

INTRODUCTION

- **Who am I?**
  - **Hi, I'm Dan.**
  - **I'm a 3d artist; I currently work in serious games.**
  - **I teach Game Development, and I love to talk about games- especially their visual components.**
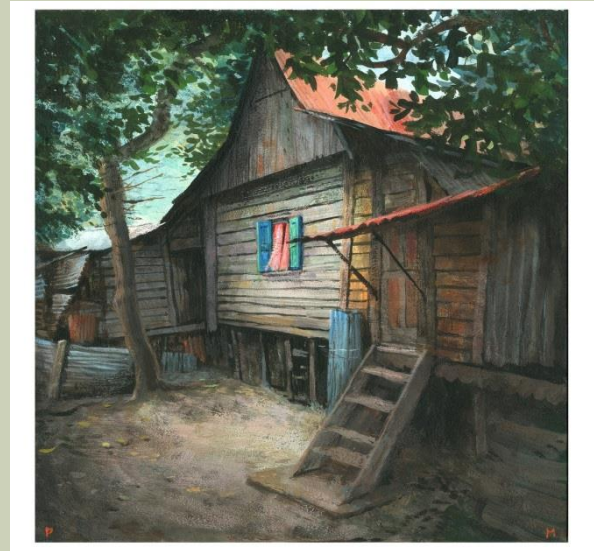 - **I'm into brain science, especially the perception kind.**

WHAT'S ALL THIS, THEN?

- Why listen to me?
  - I'm not a master artist, but I was taught by masters.

Geraldine Kovats
Background painter for a number of Disney films

Peter Moehrle
Ex-Disney, probably painted much of your childhood, too

(and others, too)

WHAT'S ALL THIS, THEN?

- Why should you listen to me?
  - I'm not a master artist, but I was taught by masters.
  - I didn't start out with a high skill level, and had to learn through a *lot* of practice…
  - …so I know a lot about what *doesn't* work.
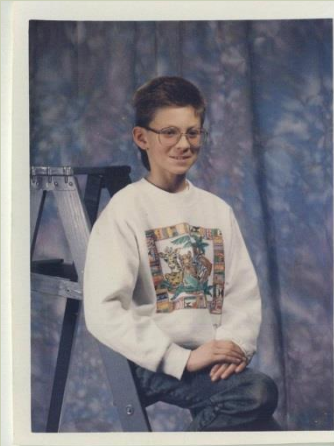 - But I survived, and now I get paid to do it.

Photo taken just before I tried art
the very first time.

Yes, that is a cyborg Santa Claus. Thank you for asking.

SOME GAME ART BASICS

- It is an important skill to be able to say that a piece of art is undesirable ("bad", if you want to be *crude*).
- A few good art assets will take you much further than a whole bunch of mediocre (or ugly) ones.

SOME GAME ART BASICS

- It is an important skill to be able to say that a piece of art is undesirable.
- A few good art assets will take you much further than a whole bunch of mediocre (or ugly) ones.
  - So generally, one of these:

SOME GAME ART BASICS

- It is an important skill to be able to say that a piece of art is undesirable.
- A few good art assets will take you much further than a whole bunch of mediocre (or ugly) ones.
  - Is preferable to 100 of these:
  - From an Art Director's POV
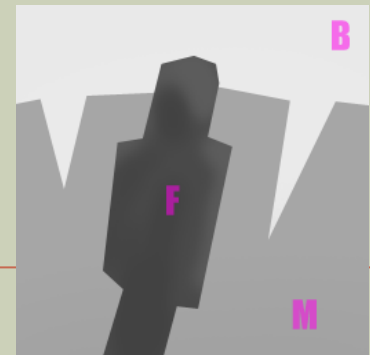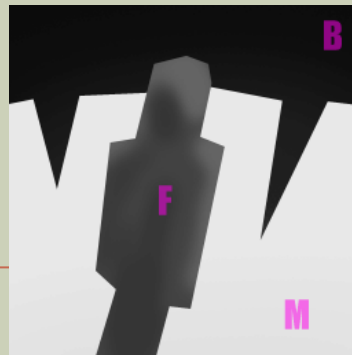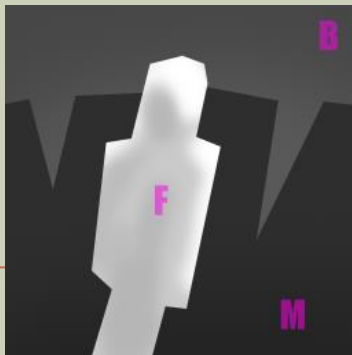
A COUPLE MISCELLANEOUS ART THINGS

- Avoid confusing or annoying the player at all costs. Unless, of course, the point of your game is to confuse or annoy them, in which case it ought to be really apparent that it's intentional.
  - This is primarily a camera thing, so make it a point (if you're doing something 3D) to know about:
    - The 180 degree rule
    - Jump cuts
    - Eye line, and preserving it for conversations between characters
    - If the above terms don't mean anything to you, I HIGHLY recommend looking them up. They could be a whole lecture on their own.
- On-site artists are way, WAY better than off-site ones. A person you can deal with, face to face, is likely to be invested in your project and will work faster and better.

MAKE AN ART STYLE GUIDE

- Before working with an artist (or other artists), put together an art guide that will govern the look/feel of the project.
- Put any art related to the project in there.
- Put art from other sources that inspire your desired look/feel. Hit up Google's image search function, or some place where you can easily look at a bunch of screenshots, concept art, and other visual stuff to put in.
- Think of it like a scrapbook, but with more direction:
  - What images can inspire the look of your characters?
  - What images can inspire the look of your UI?
  - What images can inspire the look of your environments?
  - **Try to include just a tiny bit of historically relevant fine art.** (stand on the shoulders of giants, instead of the small, wobblier ones already hanging out up there)
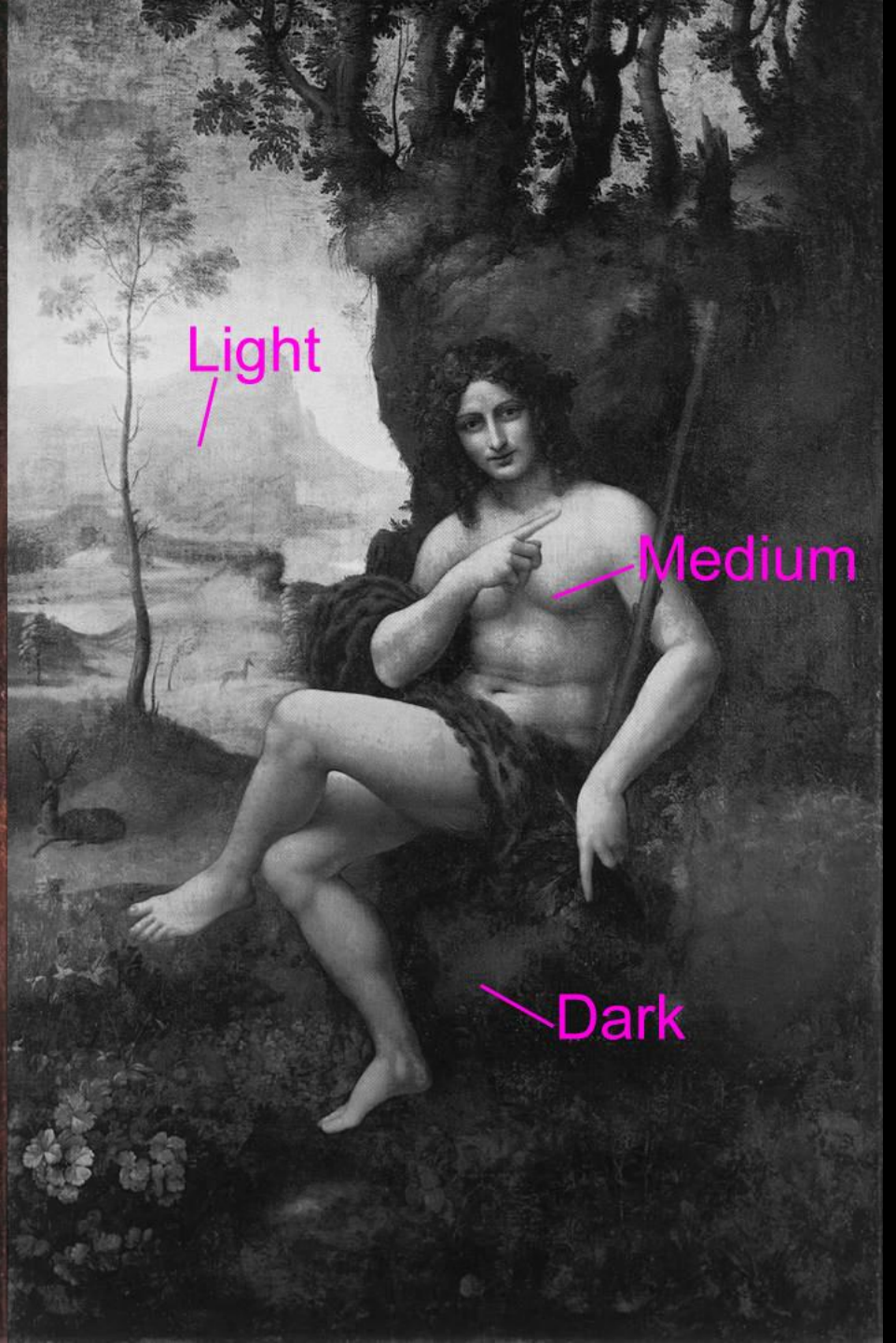
TONAL STRUCTURE!

- The human brain's visual system processes everything in grayscale LONG before it registers color, and even a ways before it processes motion. So…

- Lead players with brightness (or darkness), not color!

- Divide your screen into three fields: foreground, middleground, and background, and make one of them light, one middle, and one dark. Try to keep it solidly divided.

- All the grand master painters did it, and the best game developers do it, too.

Light

Medium

Dark

Da Vinci

TONES IN PHOTOS

- Here is a photo I took with my webcam.
- Now without color- still quite visually readable.
- Let's remove the light/dark information; just look at the colors.
- We can even super-saturated it, and it's still hard to read.
- In spite of the hard read, it kind of looks awesome.

FOCUS

- Tell players what to look at by making areas of brightness or high contrast on the screen. Make it work in grayscale before worrying about colors.

Note that in both color and black and white, the characters are the highest contrast things on the screen, with the brightest areas.

Limbo does a great job of focusing on just tones, and tells the story quite well in just grayscale.

WHAT IF WE IGNORE THE TONES?

Borrowed from Google Images, unedited by me. Notice how much the character bleeds into the background.

Let's try and save it. Now it at least has foreground/background tonal structure.
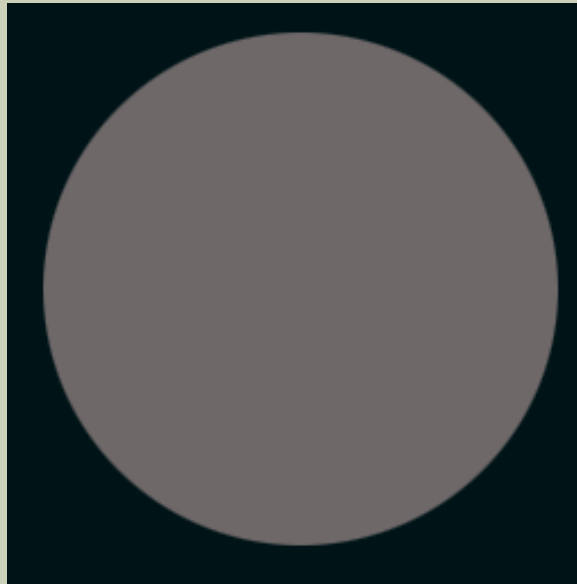
Or we could go the other way; as long as there is an assigned value-region for each of the three basic components.

CONTROL CONTRAST!

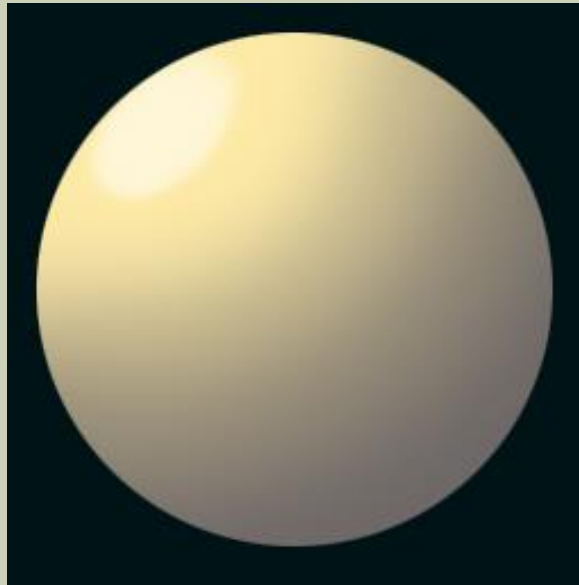# A BIT ON LIGHTING

- Every object has a local color.

A bit dull at this stage.

Usually, there's a light source coming from above, and it's a warm color (think the sun, or most light bulbs)

Now we've graduated to "default"-looking material stage.

AN ENDLESS NUMBER OF SLIDES ON LIGHTING

From the light color, you can derive an appropriate color to add to the shadows (never let your shading go to black, instead go to a dark, saturated color) by looking at the additive compliment of the light.
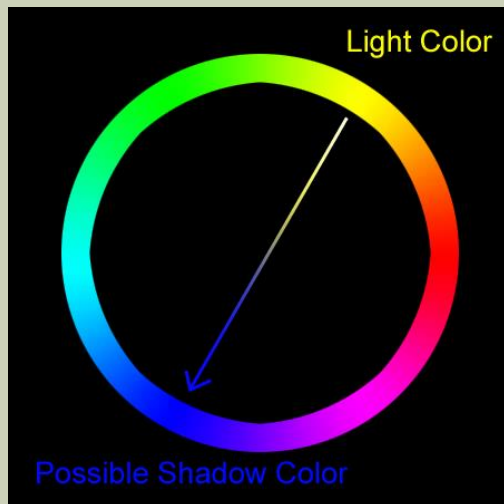

In a game, if you can't control the color of shadows, or you simply don't have shadows, you can change the "ambient" color, which is the light that's there when no light is hitting a surface. This can be a substitute. The ambient color of an object is also a great way to control tonal structure.
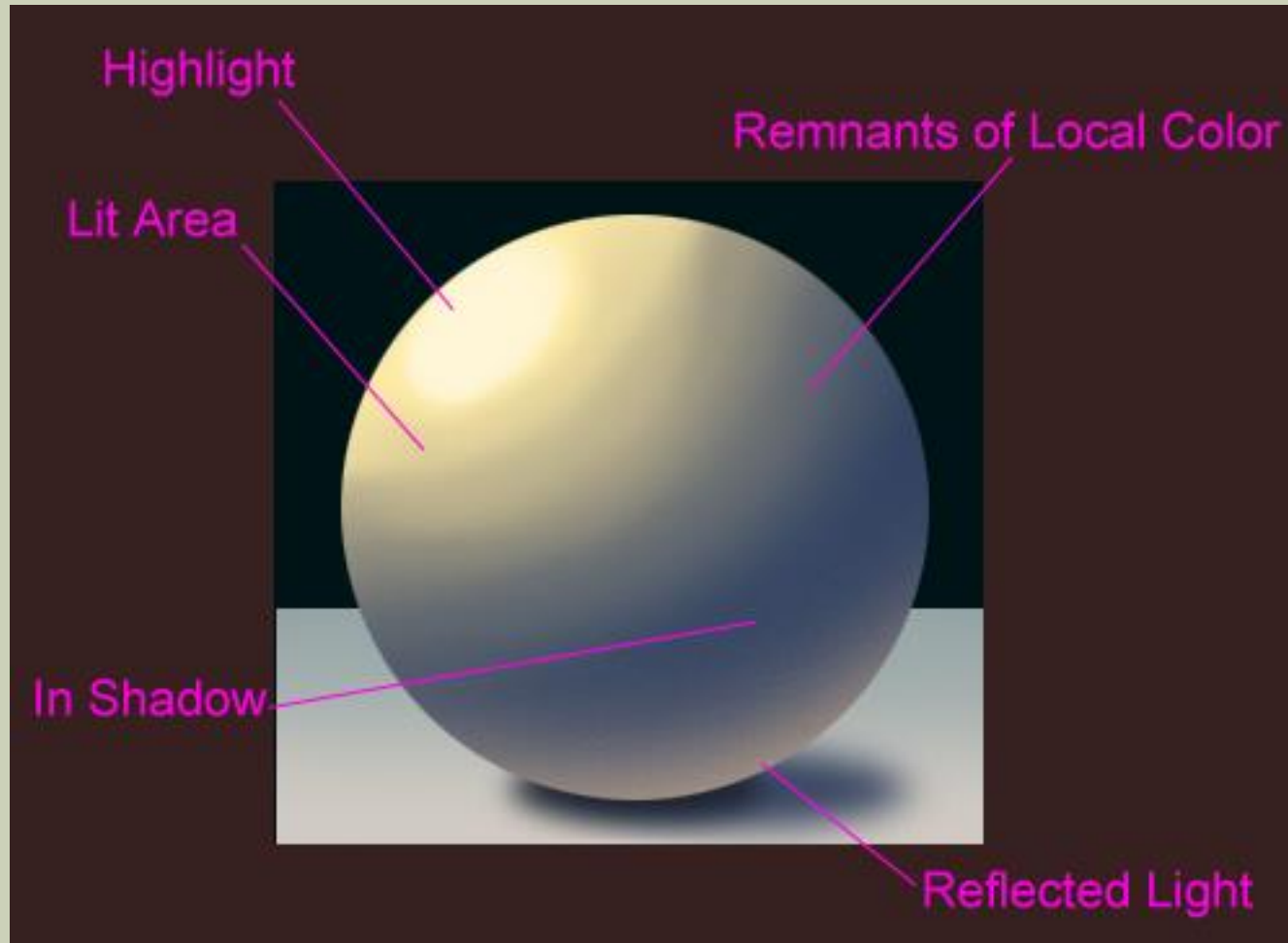
Visual intrigue!?

LIGHTING FOREVER

For a final touch, simply to add some realism, add a generic reflected light from below. This can be a warm, earthy tone (like the earth), or it can simply be a dash of white to be a bit generic.
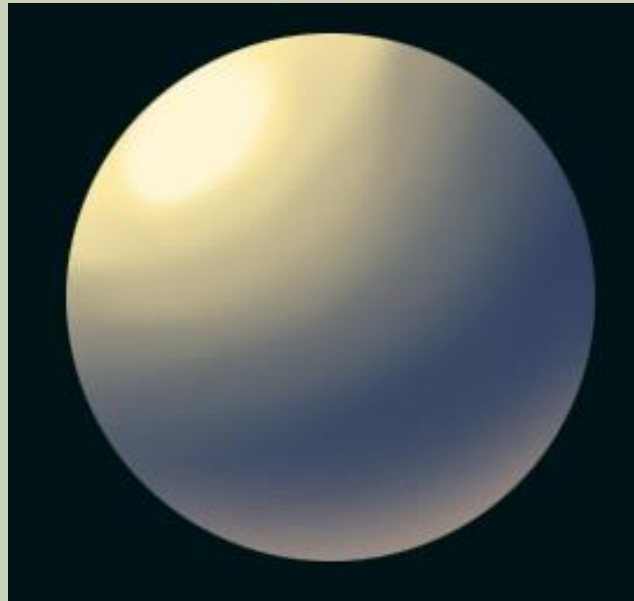
OMG it's so real-looking I'm trying to grab it off of my computer screen.

LIGHTING: THE STUNNING CONCLUSION

BUT BACK TO COLOR

- There are two color wheels of relevance,
- There's the subtractive one, which is taught in a lot of schools (because many schools buy cheap art supplies that require its understanding)
- Then there's the additive one, which is not only physically more relevant, but also biologically.

ADDITIVE   SUBTRACTIVE

Relevant to photographs, computer monitors, translucent paints. Tends to move towards white.
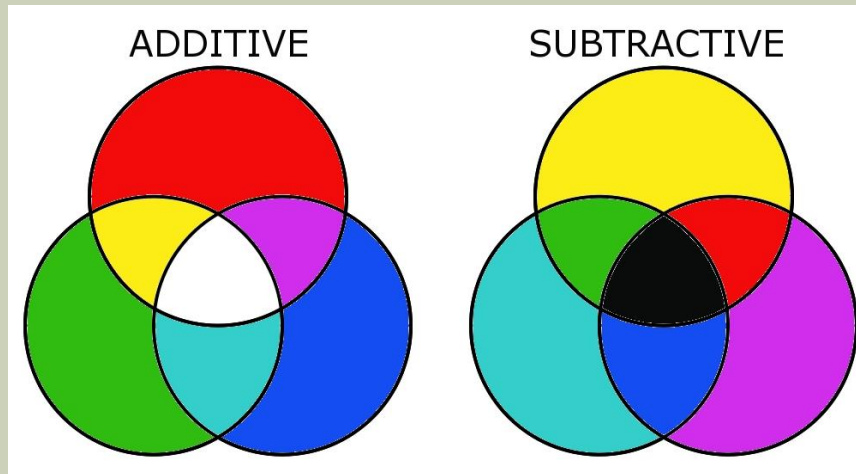
Relevant to opaque paints. Tends to move towards black (or a horrible, murky brown).

COLOR BIOLOGY

- When our eyes and brains put together the colors we're seeing, they compare all of the yellow-to-blue information, and all of the red-to-green information.
- And, since light happens in the additive spectrum, both of these comparisons include yellow (red + green on the additive color wheel = yellow, and then there's a whole collection of visual data comparing blue to yellow),
- Which means that yellow is quite noticeable, and often perceived as the "brightest" and most "lively" color.
- This may also have a psychological component, since we spend a lot of time in an environment lit by the sun (some of us do, anyways), which is a very bright, yellow light source.
- Yellow also seems to be the color of warning, perhaps of action in general.

RED

- A common misconception is that red is the color of aggression, but consider this:
- The first color you experience is red. A lot of red. In a very safe environment.
- Which means, in my opinion, that red is a safe, loving color.
- Which is why (more artist opinion, here) a lot of propaganda has intense reds.

BLUE

- Some research has shown that blue has a calming effect.
- In many cultures, blue is associated with peace, introspection, and grieving.
- Bodies of water, and the sky are (obviously) blue, so it might be safe to assume that blue can be a symbol of stability and calm.

Ahhh, so relaxing.

Adding blue with distance also creates a very believable depth effect, so consider a muted blue-gray for your distance fog in games.
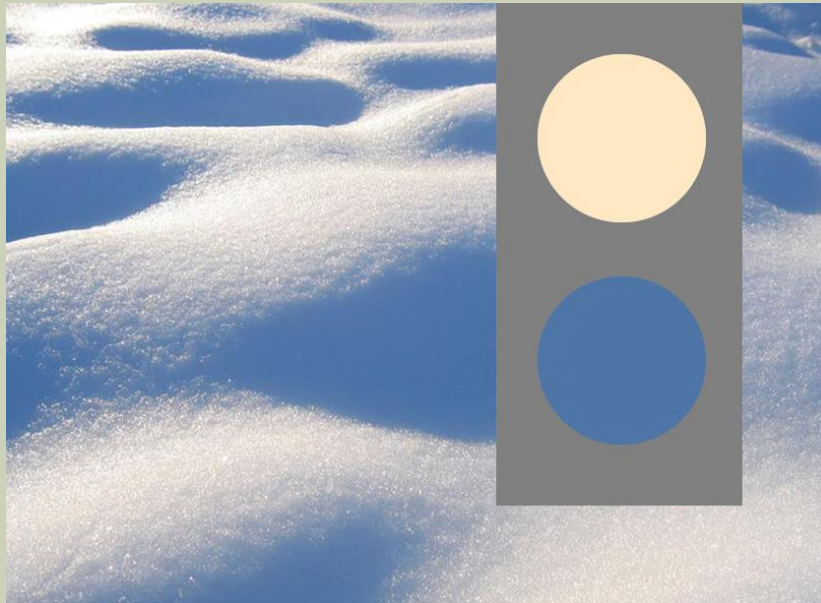
GREEN

- Green is considered a "balance" color by many.
- Perhaps we've evolved the ability to see green so we can easily distinguish it from predators, prey, and fruit.
- More cultural green themes include fertility, warmth, and refreshment.

Farcry: A game that did NOT make me feel balanced, refreshed or even remotely safe.

WARM LIGHT, COOL SHADOW
COOL LIGHT, WARM SHADOW