

## Is Blood Ever Blue?

By Greg Laden

According to one of the leading experts on the human circulatory system, blood flowing through veins is blue.

I'm not going to mention any names. All I'll say is this: A person I know visited a major research center last year and saw a demonstration of organ removal and some other experimental stuff. A person also visiting asked the famous high-level researcher doing this work if blood was ever blue. What he said was not recorded in detail, but it was very much like this statement I found on the Internet:

*...blood is red as soon as it is oxygenated. Blue blood flows through veins back to the heart and lungs....."*

My friend was disturbed by this, as she had been teaching high school students for years that blood is not blue. Her understanding of the situation was that people thought blood was blue because standard anatomical drawings and models depict arteries as red and veins as blue, and because if you look at your veins they are blue. Obviously veins are not clear so you are not really seeing the blood, but if you don't think that out you might assume that you were seeing blue blood.

So another year goes by and the same thing happens again. Another visit to the operating theater, another person asks about blue blood, another confirmation that blood is blue.

Now, I've seen both veins and arterial blood either seeping or gushing (respectively) out of various organisms, including humans and various other mammals, on a number of occasions. My grandmother used to spurt out blood from her leg now and then because of a condition she had. As I study hunting, I've observed lots of thrashing around blood spurting and seeping mammals. I've cut myself and I've donated blood. And so

on.

I've never seen blue blood. I've seen darker red and lighter red blood. But never blue.

Now, going back to The Internet we have the following three quotes:

Melissa says: "When blood gets oxygen it turns red but in your veins it is blue just look at them."

Avondro says: "Myth, it's always red. It goes a darker red, purple-like (Some call it blue) when starved of Oxygen."

SS Agent Dick Wakka says: "Somewhat true. Blood is very bright red when it is in the pulmonary vein in the lungs, when it is highly oxygenated. During it's journey back to the heart after circulating through the body, it is a little blue when it is deoxygenated, but more of a maroon-blue mix. ... This is the truth."

Agent Dick gives as a citation a "medical student." Well, I've got a citation of a leading blood researcher at a major research institution that says blood is blue.

### How do we explain this?

I think there are two things going on here, one having to do with physics and the other with culture.

The physical issue is about color. Is "purple" a kind of red, or is it a kind of blue? Beyond that, is blood that is "dark red" or "purple" really purple? Or is it dark red. See my point?

The cultural issue is that more surgeons and folks like that, for much of recent history, are males, and males are bad at color, on average. I'm not talking about color blindness, but rather, culturally determined male color indifference.

So here is what I think: If a person who says to themselves "Blood is blue in our veins" thinks either of the following:

1) That blood is blue, like this:



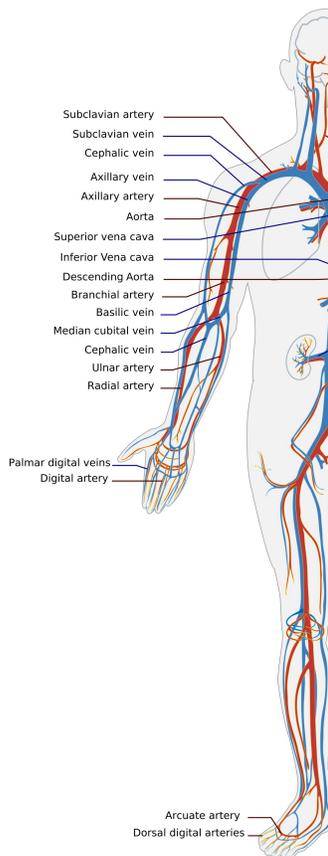
2) That blood is "blue" in that you look at your veins and see blue, thus you are seeing your blue blood....

Or

3) That you look at an anatomical chart and see the veins drawn in as blue, which makes you think the blood inside them is blue.

... then that person is laboring under a misconception.

Here is an example of one of the anatomical charts, this one from the Wikipedia.



The "blue" veins are technically, "Moderate azure" (which is a kind of blue). But there is no

blood that looks like this.

If a person thinks that this "blue blood" is purple, then they may also be laboring under a misconception. Officially, the color purple as defined by the HTML Internet standard looks like this:



(I know, it looks dark blue to me as well.)

And the Pantone, another standard, purple looks like this:



(I've never seen blood that looks like this)

Pantone Dark Red looks like this:



... not very much like the darker shades of blood that I've seen.

Personally, I think dark blood looks a little like this:



This color is 24% red, 2% green, 2% blue, but at a saturation of 92 with a color value of 24 and a hue of 0 degrees. Just in case you wanted to know.

Anyway, the color that I personally think resembles blood in its darker state is not purple. It is red with a lot of darkness added to it. Or a lack of lightness, or whatever. But it is red.

Blood is red. But finding out if this is "true" is like squeezing blood from a stone.

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