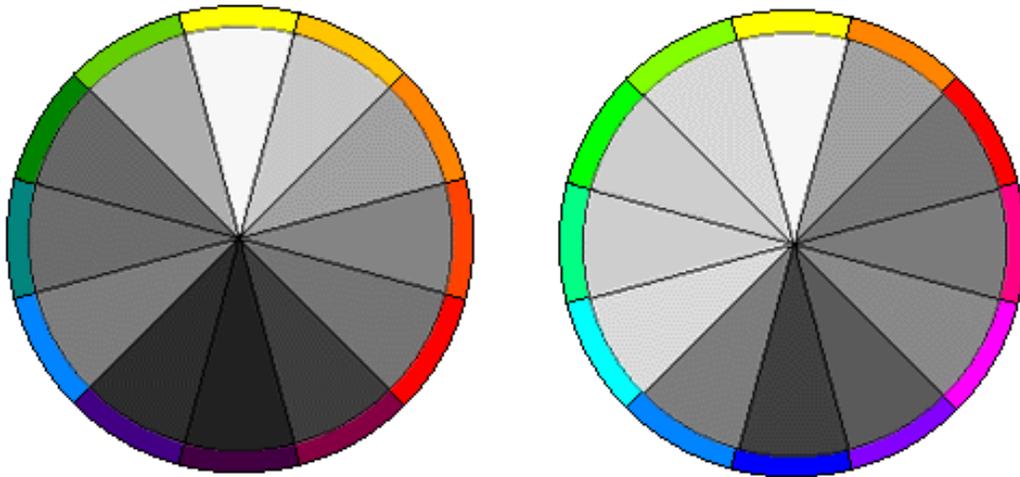


Proposal for a Percept Color Picker  
Hal Glicksman August 2018

In 1995 I did a study of the difference between RGB and the Red Yellow Blue artist's color wheel. I enumerated the differences and concluded that students had great difficulty creating harmonious color combinations on the computer because of the extreme differences in value (light and dark) of the RGB primaries and the different intervals between colors in the two systems.

Artist's color and RGB converted to Grayscale



In 1997 I calculated and plotted a color chart with value (grayscale) on the Y axis and the hues of RGB on the X axis. In RGB color, green is 61% of the brightness of white. Green is twice as bright as red 29% and red is more than twice as bright as blue at 10%.

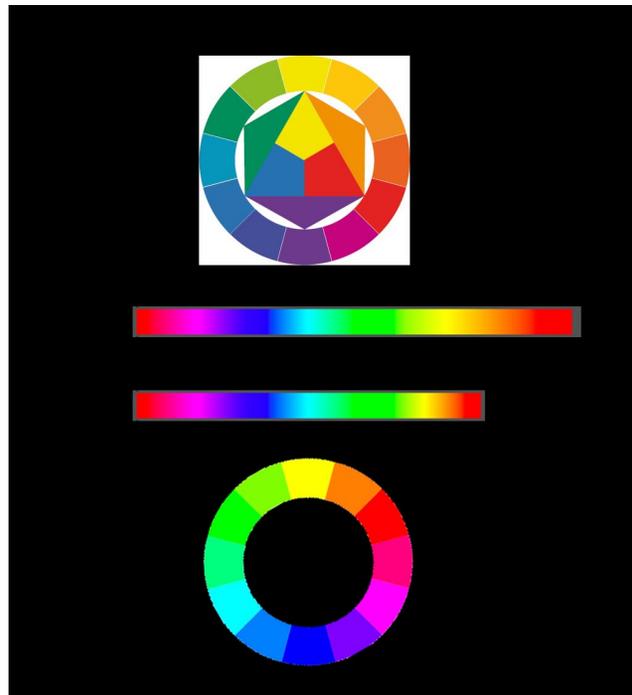
My university research committee told me not to publish my work until several patent attorneys concluded that a chart was not an invention. They then allowed me to publish my Percept Color Chart in a paper for the International Color Association, essentially giving it to the world.



I did not try to create a color picker because my chart did not solve the problem of finding the complimentary colors and harmonious triads of the artist color wheel.

I had to think of the problem for twenty more years to come up with this solution:

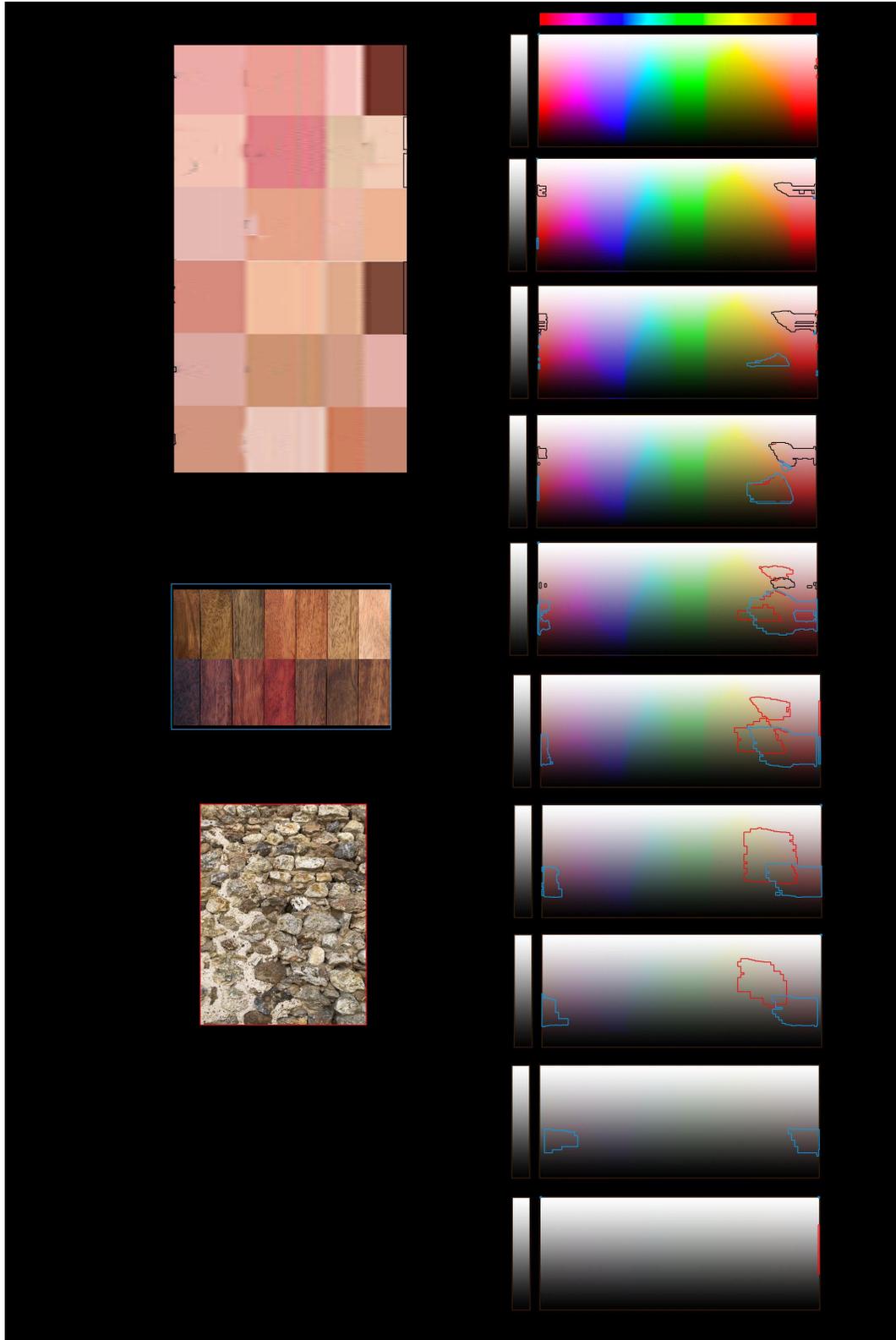
The R and G of RGB are closer together in the spectrum than G and B by a large amount. This means that we perceive more steps of color between red and green. Yellow and orange are perceived as separate colors whereas the color cyan, between blue and green, is perceived as light blue. The solution is to selectively stretch the hue axis of the color picker to match the intervals of color on the artist's color wheel.



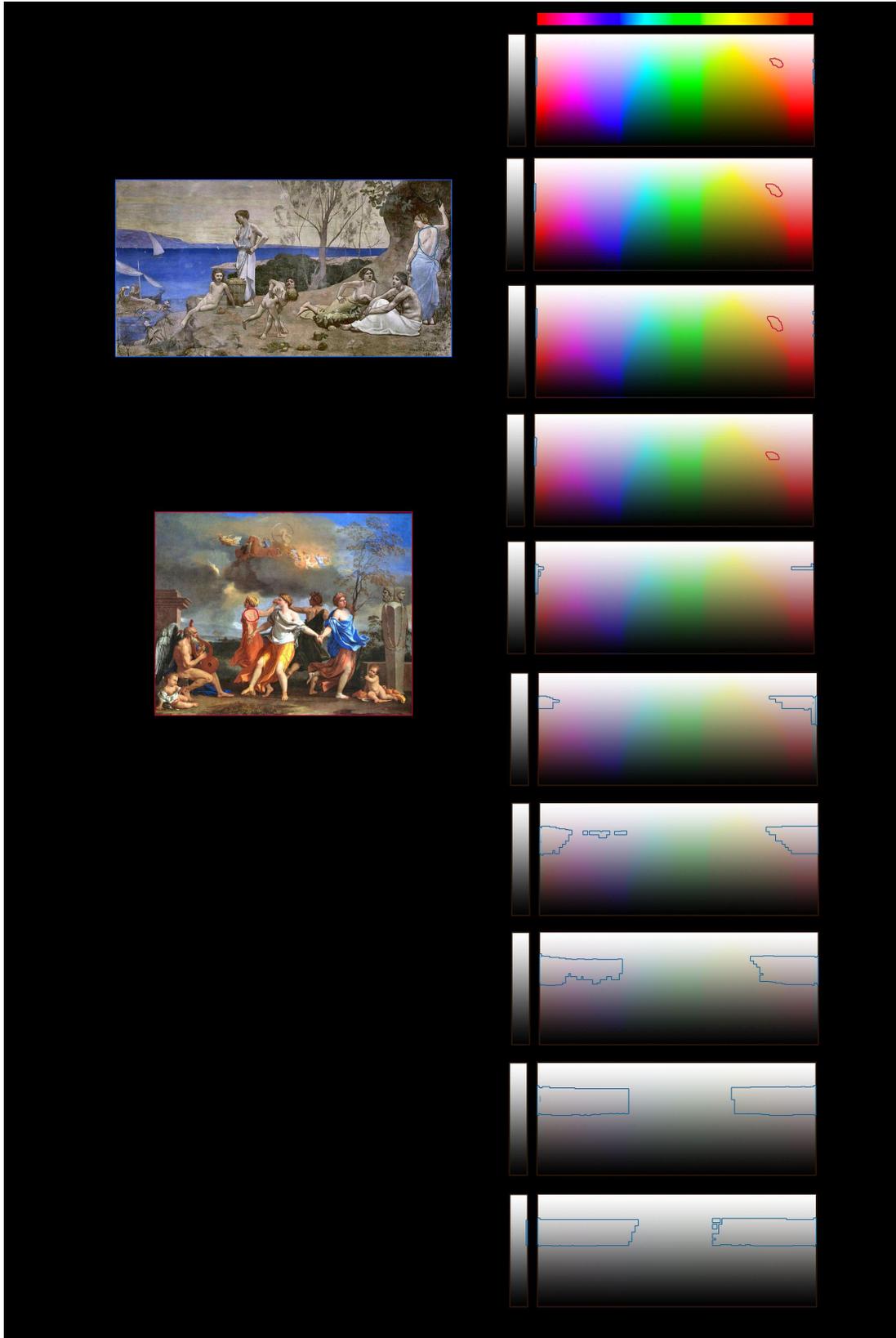
I have stretched the hue axis on my Percept Color Chart, and the result is a user intuitive way to select colors that are subtle and pleasant. It is also a great help in finding colors of things that are important to users such as wood, skin, hair, soil, and amber beer that are hard to visualize and hard to find in RGB color pickers.

I haven't the knowledge to program a color picker that would display saturation, but in Photoshop I have created a simulation of the data that such an app would produce. My simulations show a color picker that provides an intuitive understanding of saturation and access to subtle real world colors “in the gray area.”

The gray levels are just stacked up in this diagram, but there are elegant ways of navigating the Z axis that I need a number cruncher and interface designer to create.



Skin colors are outlined in black, wood in blue and stone in red using 'select similar' command in Photoshop.



An area of a woman's back outlined in blue on a fresco and red on an oil painting

