UNIVERSITY of PENNSYLVANIA

Faculty of Arts and Sciences
Department of Psychology

3815 WALNUT STREET
PHILADELPHIA, PA 19104

North Truro, Mass
June 18th, 1989

Dear Rolf:—

Sorry about the delay in replying to your letter of May 30th. We have been in the midst of shifting our "operation" from Penn to Cape Cod for the summer months. This has been our procedure for many years now.

Firstly, I do not think of an opponent color system as simply a "psychological" one as your last paragraph characterizes it. Given the tie between the neurophysiological mechanisms and the related sensory and perceptual events, I think a better characterization would be "psychophysiological" opponent color system. But I guess that what you are after is the evidence that comes from the perceptual events, reports or experiments, independently of what the electrophysiologists have to offer.

Your question what are the "most telling" experiments at the psychological or perceptual level, has the elements of a "desert island" experiment: I'm given the choice of only one or two phonograph records (C.D's nowadays!) along with a record player, &c. &c.

A very strong case for the opponent's system can be made by appealing to simultaneous and successive contrast and induction effects. But the most telling experiments are, in my opinion the cancellation ones and the consequences flowing from them. It isn't only that you can see the antagonisms displayed on inspection, as it were. Once the measures of chromatic responses and whiteness-blackness are in hand they can, to take one example, be converted to hue coefficient and saturation coefficient values. These can in turn be compared directly with perceptual scaling data along these two dimensions. The agreement is remarkable. And this is only one of any number of other predictions that can be made on the basis of the experimentally measured functions. Other predictions relate to discrimination data, adaptation effects, color blindness phenomena, etc.

Let me add that at the very simplest observational level ~~that~~ it's very instructive to ask a student (though probably not "most telling" with sophisticates) to look around your office and point out objects that are both reddish and greenish at the same time in the same place. Or yellowish and bluish!

Regards from Dorothea to whom I relayed your message.

Sincerely,

Leo