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"RESEARCH"

NATIONAL RESEARCH COUNCIL OF CANADA  
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August 13, 1973

AIRMAIL

Mr. Rolf Kuehni  
Group Manager  
Development & Color Physics  
Verona  
P.O. Box 385  
Union Metropolitan Park  
Union, N.J. 07083  
U.S.A.

Dear Mr. Kuehni,

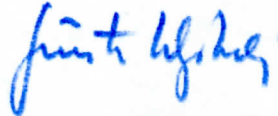
Thank you for your letter of July 30, 1973. I have reread the preprinted abstract of your paper you presented at the AIC York meeting last July. I still have some misgivings about your hypothesis, though I begin to appreciate your arguments. Your letter has helped somewhat to clarify the issue. I assume that most of my difficulty is perhaps the fact that our terminologies do not always match and thus misunderstandings arise. For example, in your letter you say that "the confusion in color discrimination is a qualitative one and not a quantitative one." Does this mean that it would not be possible to derive a mathematical model for your hypothesis? I would have liked to see such a model which, if available, would more quickly enable me to understand the mechanism of color discrimination you hypothesize.

However, in view of the rather poor precision of color discrimination data, particularly color-matching ellipsoids, some further experimental work appears most desirable to put your hypothesis on a more solid basis. Perhaps you will continue to pursue this intriguing problem.

With regard to statistics and its usefulness in the interpretation of visual data, all I wanted to bring out at the York meeting was to caution fellow researchers. I wanted to promote the idea that statistical inferences can be misleading at times and provide a too optimistic view on the reliability of both the experimental and analytical data. "Black Clouds" are just an indication of the basic problem we have in vision. Another indication we gave in our paper in J.O.S.A. 61, 1135-1152 (1971) (particularly p. 1140 and 1141) on color-matching ellipses (copy enclosed). Apparently the basic assumptions that govern elementary statistics (normal distribution, identical population, etc.) do not always apply to visual data. More work in this field appears to be desirable.

With best regards.

Yours sincerely,



Gunter Wyszecki

GW:m1  
encl.