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[FROM THE AMERICAN JOURNAL OF SCIENCE AND ARTS, VOL. XIII, JAN., 1877.]

Observations on a property of the Retina, first noticed by Tait; by
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IN the Edinburgh Proceedings, 1869-70, vii, p. 605-607, Tait described an interesting observation, which has perhaps some bearing on Thomas Young's theory of color. While suffering from indisposition, he noticed each time on awakening from a feverish sleep, that the flame of a lamp seen through a ground-glass shade, assumed a deep red color, the effect lasting about a second. He suggests that the nerve fibrils in the retina also partook of sleep, and on awakening the green and violet nerves resumed their function somewhat later than the red. I have in my own case noticed some instances, which seem to point out that after a *nervous shock*, sudden or prolonged, the green nerves (adopting the theory of Young,) recover their activity later than the red, and probably later than the violet nerves. The first observation was made twenty years ago while recovering from the effects of chloroform, which had been administered by a dentist, well known at that time in Munich. Upon regaining consciousness, and raising my eyes to the face of the operator, I was a little surprised at not having previously remarked his unusually ruddy complexion, but the next instant saw that this was due to an optical illusion, for his hair appeared of a bright purplish-red hue. The singular appearance lasted perhaps a couple of seconds, when his hair resumed its natural color, which was *white*. This observation corresponds with that made by Tait.

I give now an instance, where chronic effects of a similar character were noticed by me for a couple of weeks continuously, during convalescence from typhoid fever. In this case white objects appeared of a not very intense orange-yellow hue, the general effect on a landscape being such as is produced by the orange-yellow rays of the setting sun. Here the activity of the green and violet nerves was diminished relatively to that of the red. The auditory nerve was also evidently affected during the same period, but precisely in what way I did not ascertain.

It is a matter of yearly observation with me, that effects, similar in kind with those first noticed, are produced by prolonged exposure to bright white light out of doors. Under such circumstances white objects no longer appear pure white, but are tinted plainly purplish-red, and rather dull greens assume a gray hue, as though all the green in them had been neutralized, while strong greens are considerably reduced in intensity (saturation.) Upon leaving the blinding glare and entering a darkened room, it often for several seconds appears filled with a greenish haze.

Two of these cases and, probably that of Tait, point out, that our apparatus for the reception of waves of light of medium length, is more liable to be over-strained by nervous shocks or by prolonged excitation, than is the case with those designed for the reception of waves of greater or lesser length. Nervous derangement and prolonged excitation, are then causes, which may produce temporary green color-blindness.



