

# VISUAL FIELDS

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Duncan, Okla.

By

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Caffeine, according to Scott, editor of Gould's medical dictionary, is "an alkaloid found in the leaves and beans of the coffee tree, in tea, in Paraguay tea and in guarana the roasted pulp fruit of Paulina Sorbilis. It occurs in long silky needles, slightly soluble in cold water and alcohol, with a feebly bitter taste. It is a cerebro-spinal, circulatory and renal stimulant. Dose 1 to 3 grains (.06 to .2 grams)," and he takes seventy-one additional lines to describe it.

If it is an alkaloid it is of the nature of alkali, and is chemically basic, and forms salts with acids. Caffeine is an agent used to stimulate mental, cerebrospinal, circulatory and kidney activity. It causes a dilation of the blood vessels giving an increased flow into fine capillary regions of fore mentioned organs, and elicits excitory responses in nervous activity. In the common sense of the term it is a "stimulant."

Scott says a dosage, medicinally, is from one to three grains. Ordinary home brewed coffee contains about two and one-half grains per cup, and it may vary from one and one-half to seven grains according to the method and length of the time of brewing. Hence, our commonly used coffee may contain the equivalent of several medicinal doses of caffeine.

Tea is from the leaves of Thea Sinensis, a shrub containing theine which is identical with caffeine, and theinism is described as "a morbid condition due to excessive use of tea" and "is characterized by headache, palpitation, tremor, insomnia and cachexia, (malnutrition) etc."

Various cola beverages obtain their names from the Cola-nut a seed of Cola-acuminata, and the coca plant. Cola is a nerve tonic and stimulant, used in central Africa as a tea and coffee substitute, containing an alkaloid similar to caffeine. Dose 16 to 60 cc. Coca comes from Erythroxyton- coca, a shrub of the Andes containing an alkaloid, cocaine. Dose 2 to 15 grains.

All of these drugs are similar chemically and are blanketly referred to as "caffeine. From their medical definitions, it is obvious they all have stimulating properties. A stimulant is an agent, which, again according to Scott, "is a goad, it quickens excites, and increases functional activity.

An increase in functional activity may be desirable if that of the organ is less than normal, that is, if the increased activity is to be brought about for therapeutic purposes. To load organs with unnecessary increased activity, such as increased heart beat, is tending to break them down prematurely from over activity.

Then to visual fields: in keeping with our studies in paper No. 11 we find that when the organism is

in a state of stimulation from any toxic substance the peripheral outlines of the various colors increase in size. Especially does green increase, even to overlapping the red outline. Our purpose as Optometrists in finding this is, of course, to determine if there is any toxic effects that will interfere in the patient's visual efficiency and comfort. If a person has two teeth that are decayed so that neuro-fibrils are exposed to sweet and heat and cold, etc, he cannot expect freedom from toothache if only one of them is filled.

Let us see how this had proven to be valuable in certain cases. We must remember That individual tolerance to specific to specific toxic agents may vary, and an amount that is detrimental to one person may produce no noticeable effects in another. For instance three persons may each be consuming equal amounts of tobacco and coffee daily. One may become intoxicated from the alkaloids of tobacco but be unaffected by coffee. Another may be affected by coffee but not from tobacco, and the third may show no effects from either agent, at least not until they have been consumed over a greater period of time. All that visual fields show is an indication of an abnormality at the time of the test.

Consider the case of a University graduate age 29, who was employed checking fruit at a produce house. He complained of fronto-occipital headaches, intolerance of light, and insomnia. He said he was unable to hold a responsible position on account of poor memory and lack of concentration. He averages not less than eight cups of coffee per day, and on the day he was examined had consumed four cups of coffee by eight A.M.

\* Figure No.1 shows the left eye at 10:30 A.M. The green outline overlaps and interlaces with the red.

Figure No.2 shows the left eye forty-eight hours after the elimination of coffee. Note that it is normal.

Figure No.3 was taken at 11:00 A.M. six weeks later during which time one cup of coffee had been taken daily. Green is enlarged but not to the state of interlacing with red.

Analysis shows a definite toxic reaction to the large quantity of coffee consumed. A lesser amount did not create the same effect as the greater amount, and so it was determined that one cup of coffee daily was not proving to be harmful to that individual at that time. The patient was not using alcohol or tobacco in any form. The refractive situation was considered negligible.

Six weeks later the patient reported he was entirely free from all distressing nervous symptoms. A year and four months later he returned again and reported he had been so much improved that he now held the position of general sales manager and filled his duties with comparative ease.

It is interesting to note that through visual field studies tolerances can be established in some cases that will permit the patient to continue taking some of the accustomed drug without ill effects. It is often difficult to convince patients that they should eliminate entirely a habit of long standing, and especially if there is a great deal of enjoyment attached to it. When this is the case a compromise can sometimes be made in safety by taking several tests, associating visual fields with varying amounts of the alkaloid, and selecting as a maximum the greatest amount that does not produce field changes.

Another rather phenomenal case for study is that of a wealthy mining man, age thirty-five, who retired from business to live at ease in Europe.

The patient complained of occipital and basal headaches, vertigo, insomnia and inability to do any work demanding concentration. His lens prescription was  $+0.25 \times 90$ . He indulged in alcoholic beverages and averaged three cups of coffee between nine and ten A.M. He had consulted many nerve specialists in Europe without obtaining satisfactory relief.

Figure No.4 is the chart of the left eye (only one eye shown to conserve space) at 10:30 A.M. It is small but no interlacing of colors exists.

Figure No.5 was taken at 4:45 P.M. and shows red overlapping blue, and indication of the depressive state. He was instructed to refrain from coffee for a period of 24 hours.

Figure No.6 taken the next day at 4:45 P.M. shows the characteristic color perception normal, though the relative size of the field is still small. To establish a tolerance he was instructed to drink one cup of coffee daily for two days.

Figure No.7 taken two days later at 4:45 P.M. shows the color fields larger and green overlapping red in one meridian only. He was then advised to refrain from coffee altogether and report in two weeks.

Figure No. 8 taken 13 days later at 4:25

P.M. shows the relative size to be medium or large, with color relationship normal. All previous symptoms had entirely disappeared.

All cases are not so typical and or such "story book" fashion, but many cases who come to the Optometrist need nothing more than the elimination or a toxic source. The foregoing types or toxic cases are not for reference to an Ophthalmologist. They can best be controlled by a Perimetrist. Visual Training the use of lenses or prisms, etc, will not be or help for those cases who have eye disturbances from exogenous toxemias alone. Many case who do need lens prescriptions and orthoptic training will not respond the way they should so long as they are in a state or functional disorder from toxic sources. For the sheer purpose or building a large practice of satisfied patients visual field studies are a great aid. Or course their real value is the diagnostic evidence they offer in assistance to patient who are in trouble. Help to the patient is the purpose and calling or the professional Optometrist. Visual Fields is one of the important vehicles on which it progresses.

\* Only the left eye charts are shown showed the same effect all the way generally one eye is more advanced in the depressive and degenerative

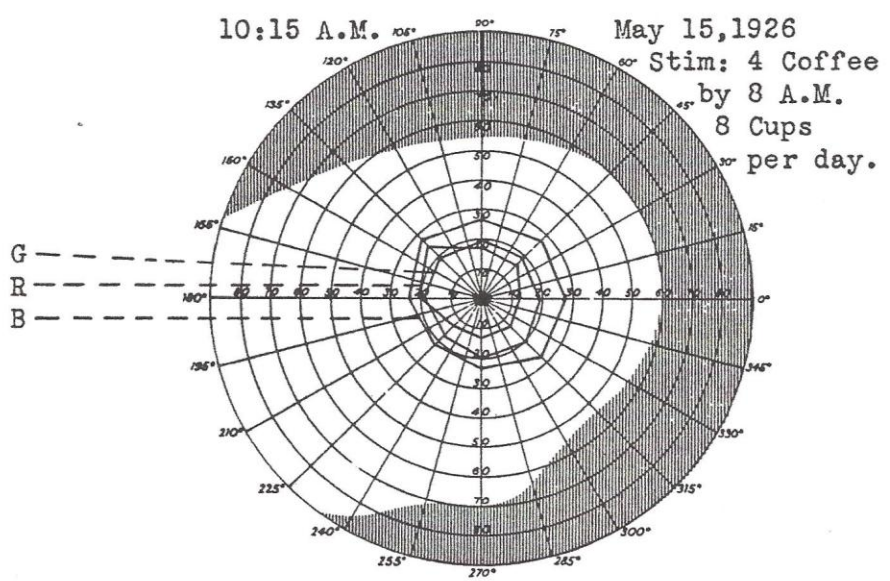
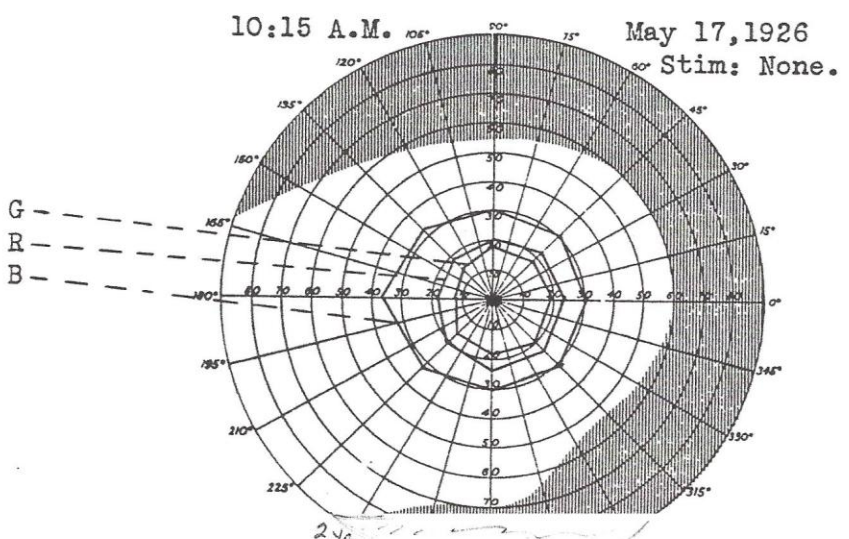


Figure #1.



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Figure # 2.



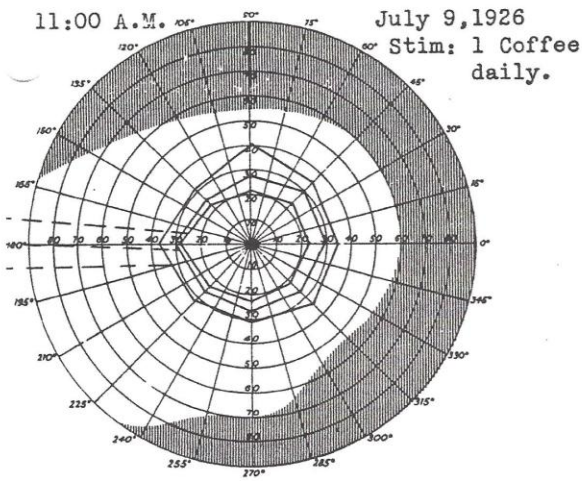


Figure #3.

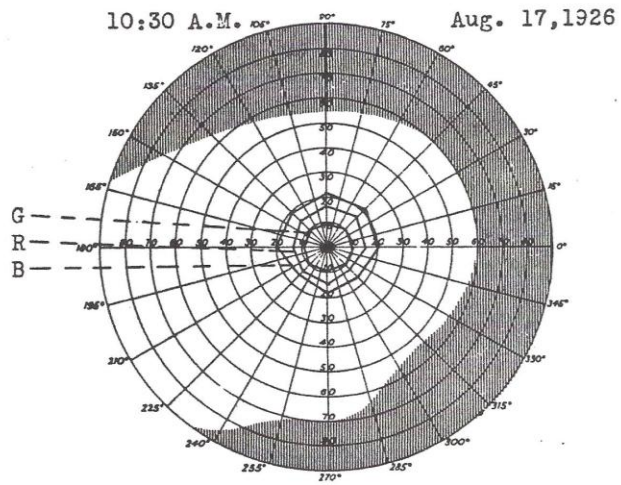


Figure #4.

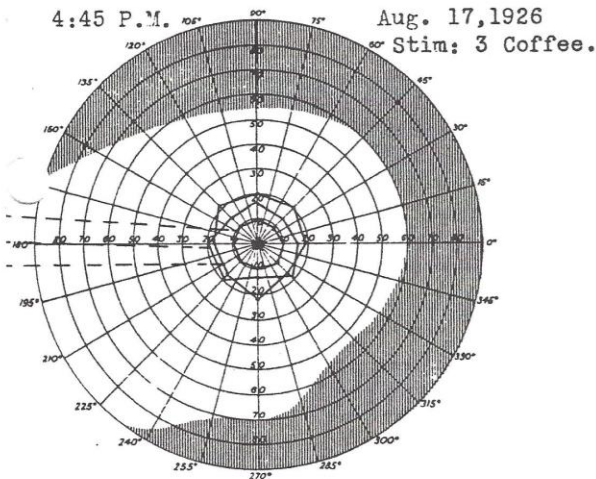


Figure #5.

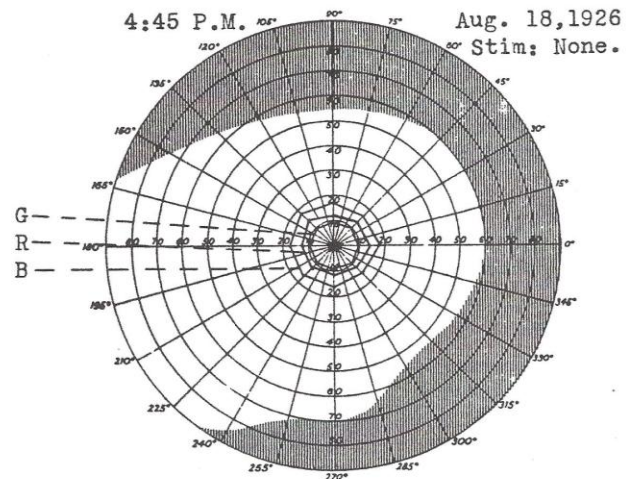


Figure #6.

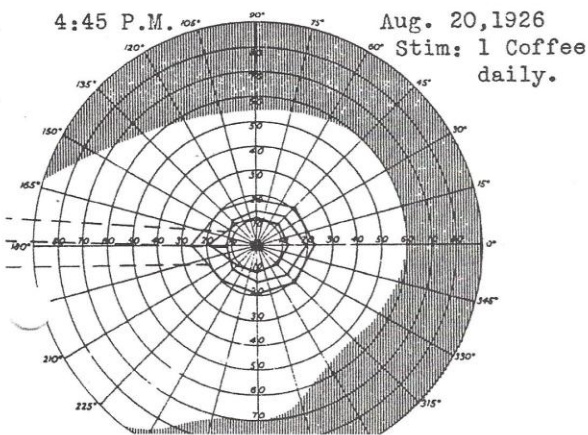


Figure #7.

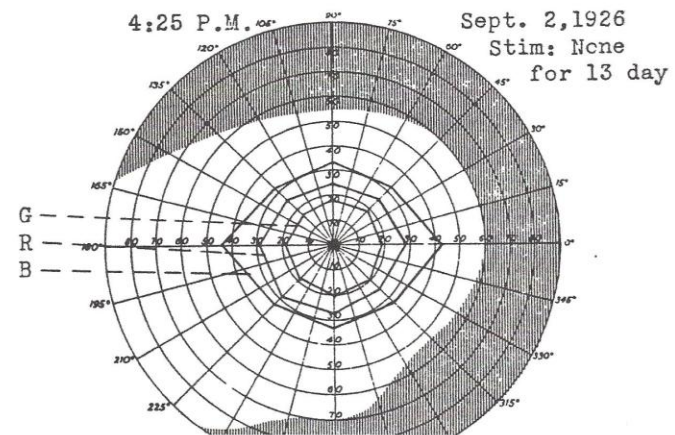


Figure #8