THE SYNTONIC PRINCIPLE

By

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AND *there is a principle*.

That principle is old, very old, and, if the writer's memory serves him right, it is recorded as having been effectively used in one of the early chapters of Genesis. Whether this be legend or fact, the fact remains that it is there recorded. A more recent reference to the same principle appears in "Compost for Shepherds", written in 1493. Yes, that date is correct.

Not because of its antiquity is this principle *right*, but because of the verities which are eternal.

As long ago as 1909 the writer was taught the use of light for therapeutic purposes, both "straight" and filtered. He so used it for a number of years, but it was not until June of 1919 that the thought of applying *treated light* to the human eye, other than by the use of geometrical optical means, occurred to him. Historically it might be cited that to *Dr. Francis P. Barr*, then an instructor in Applied Optics at Ohio State University, should go the credit for instilling the thought that has evolved into what has now become known as "Syntonics". During the same course *Dr. Charles Sheard*, then at Ohio State University, made a suggestion relative to sciascopy, which, taken with the statements previously made by *Barr*, resulted in an eleven year search for a means of applying in a practical manner the involved principle to ocular problems, *within physiologic limits*, as they present themselves to optometrists.

During the summers of 1920, 1921, and 1922, experiments were conducted with the help of *Dr. F. F. Wilcox*, but no conclusive results were obtained. "Things" happened, but they apparently had no connection with the known facts of physiology. In 1924 the writer had the good fortune to contact *Dr. Arthur Hoare*, who at a subsequent date directed him to a then recent work by *Raup*. It was here that the key to the dilemma was discovered. Acting upon the theories advanced by *Raup*, the entire matter of apparently contradictory results, began to have a meaning to make "sense", as it were. *Bueler* had already, in 1922, neologized the principle, elucidated by *Raup*, and had in fact, set forth certain criteria which proved invaluable in developing to a practical status the experimental data which the writer had previously accumulated, i.e., prior to contact with their works. Contact with the writings of *Faulkner*, and those of *Babbitt* lent a directory influence to the investigations. Of course, it is to be expected that "me too-ers" will attempt to mislead, but optometrists may be here assured of the facts, documentary proof of which is in the files of the College of Syntonic Optometry.

Now what IS this principle?

To be common-place, it is just what the name implies. *Syn*, from the Greek, and *tonos*, from the same language, when used together in the one word, as used by *Bleuler*, connotes merely a balanced, integrated nervous system. It certainly does NOT meant the use of filtered light, nor does it mean "tuning" to a light frequency, as some would have you believe. Balance of the nervous system as it applies to ocular function, its associated or supportive functions, is ALL that is sought for or intended by this technique in Optometry. Integration of the nervous system, *within physiologic limits*, is not as simple as the foregoing might imply, yet, the application of this principle will solve all of the optometric departures from the normal that fall to the lot of the optometrist to handle.

The "functional powers" of a pair of human eyes are dependent upon and mediated through the nervous system. This involves the brain, the cord and autonomic nervous system. Optometrists have been taught light, physics and geometric optics and some physiological optics, yea, anatomy, physiology and pathology, as it pertains to Optometry, the latter for the sole purpose that they might recognize and undertake only those cases in which the departure from the normal was within the limits of physiologically normal processes. Yet, with all this teaching, they have not been taught a number of purely optical means of integrating the several nervous functions involved, to the end that the patient may have effective, comfortable, single, binocular vision. It is this latter phase of the subject that the writer has entered upon and to a large extent succeeded in so ordering that hundreds of optometrists are now able and capable of doing these things. AND THEY ARE DOING THEM.

In order that this principle might properly be applied, it has been necessary to develop and to teach no less than EIGHT new basic criteria for the determination of certain physiological limits heretofore never taught to optometrists. Not only that, but no less than ELEVEN optometric diagnostic method have been evolved so that optometrists may know just what must be done in any given case to re-establish such integration of nervous function as is necessary for proper physiological ocular function to prevail. Furthermore, that optometrists may not go astray in the clinical application of the patient prior to the application of the syntonic principle. It has then been required to set forth *no less* than ONE HUNDRED FIFTY-FIVE separate and distinct ocular or associated functional departures from the normal that may *occur within the limits of normal physiological processes*, and to state the means of producing a proper nervous system integration in each of them. NO WHERE ELSE in the literature, -- optometric or otherwise,--can be found these correlations and methodical applications, "me too-ers" to the contrary notwithstanding.

Here it must be said that the known facts of physiology involved are not new, but their application to optometric problems *is new*. Here the writer is reminded of a remark made at the close of a class session, by a man high in educational circles, a man whom you all know, "Riley, it's a confounded shame that you have to hop about the country to teach these fellows the physiology they should have been taught in school, both as to the fact, and application." This man certainly did not intend censure of the schools as such, yet he recognized that certain basic truths taught in the course in syntonics should be common knowledge to all of the biological profession, of which Optometry is one. To cite one concrete example, the fact that skeletal muscle has single activating innervation and visceral muscle has dual innervation. Yet these two kinds of muscle and an understanding of their physiology are vital to the practice of Optometry.

It appears from the foregoing that syntonics is merely the elicitation of nervous reflexes for the emendation of vision and the visual functions, nothing more. That's right. The mediating mechanism of all ocular function being nervous, the very act of seeing, as such, being so mediating, it therefore, appears that any optical correcting means should be and is the proper and indicated optometric approach thereto. In syntonics this approach is made through the use of lenses, prisms, absorptive media nd so-called "orthoptic training". The method of training is premised solely upon re-establishing integration of visual and associated ocular function, either as a result of utilization of the normally present reflex mechanisms, or as changes might take place in the transmitting ocular media, never as a result of establishing conditioned responses.; "Orthoptics" so premised is new to Optometry. This development is just another phase of the application of the syntonic principle.

Syntonics is not an instrument. Its principle may to a large extent be applied by many existing optical accessories in everyday use. However, to get maximum results from the professional use of the principle it is best to make use of physiologically calibrated media. These are available.

Another syntonic principle in applied Optometry is the taking into consideration the fact that *developmentally* the nervous system of individuals differ quite widely. This fact has long been recognized by animal breeders. Dogs vary to almost unbelievable extent as found by *Pavlov*, later experimentally determined by *Stockard*. Human beings vary even more so. In other words, to the same stimulus the reaction may vary in kind and degree as between differing nervous constitutions. This is, in some measure, accounts for the varying

responses we find in patients under identically the same diagnostic optometric tests. Yet, we have for decades been placing them in our refracting chairs and attempting to make these varying reactions fit into some particular sort of a syndrome which would enable us to prescribe. We have not taken into consideration the possibilities inherent in nervous constitutions. In syntonics we do, and we know why we do.

The writer felt highly complimented when, after completing the presentation of the Basic Course in Syntonics, a widely known optometrist said to him, "Riley, you've brought to Optometry its *first new principle* in almost a hundred years."

I believe he is right.

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