

Cigánek L. The EEG response (evoked potential) to light stimulus in man.

*Electroencephalogr. Clin. Neuro.* 13:165-72, 1961.

[Dept. Clinical Electrophysiology, Inst. Experimental Medicine of the Slovak Academy of Sciences, Bratislava, Czechoslovakia]

The visual evoked potential is a very small bioelectric potential complex which can be registered, by means of sophisticated methods, on the human scalp as a response of the brain to a light flash. It represents an objective, biophysical correlate of the visual afferentation and perception. [The *Science Citation Index*® (SCI®) and the *Social Sciences Citation Index*® (SSCI®) indicate that this paper has been cited over 280 times since 1961.]

L. Cigánek

1st Neurologic Clinic  
Academician L. Déřer's Hospital  
Comenius University Medical School  
809 46 Bratislava  
Czechoslovakia

November 25, 1981

"In human neurophysiology it has always been a most exciting problem to search for objective correlates of the subjectively experienced states. Visual sensations are such states and visual evoked potentials (VEPs) represent their objective, biophysical correlates. The work presented in the cited publication was inspired by my teacher, Professor Černáček. The task was not easy. The amplitudes of the VEPs ranged within microvolt order and their duration was only about 300 ms. Moreover, they had to be detected in the 'noise' of the continually ongoing background electroencephalographic activity with amplitudes of tens to hundreds of microvolts. Today this work is done in a most sophisticated way by means of computers (we are also going this way now), but from 1950 to 1960 this technique was not yet available. We used the photographic superimposition method introduced by Dawson in 1947<sup>1</sup> and thousands of measurements and computations realized by hand by Vera,

my wife and technician, who supported me in my work in any way. She was perhaps less efficient than the modern computers but surely much more reliable.

"The reason for the frequent citation seems to be quite clear. The publication presented a rounded knowledge about the basic parameters of the VEPs at a time when little was known in this field. In the carefully collected bibliography there were only six articles dealing directly with the VEPs studied accidentally in limited groups of subjects while the cited publication represented a systematic study of a rather large group of normal subjects. In the same year the same results were published *in extenso* in a German monograph,<sup>2</sup> the first monograph about the evoked potentials (EPs) in the literature at all. Later, throughout the world, a tremendous surge of work in the field of EPs brought extensive knowledge of the physiology and pathophysiology of the human brain and even knowledge about the mechanisms of the mind. The work is still going on and the discoveries of the last years also represent an important contribution to the clinical diagnosis of nervous diseases. In 1973, I was invited to read a didactic lecture about VEPs at the Eighth International Congress of Electroencephalography and Clinical Neurophysiology in Marseille, and later I was asked to write a chapter on the same topic for the first *Handbook of Electroencephalography and Clinical Neurophysiology*, which appeared in 1975.<sup>3</sup>

"It is a good feeling now to be a member of the extensive intellectual community of scientists working in this field. Many of them are my good friends. We meet time after time at congresses and symposia and visit one another in our laboratories, believing that future research into EPs will still teach us more about the way in which the human brain works. To the best of our knowledge there are no unknowable things, only those which are not yet known."

1. Dawson G D. Central responses to electrical stimulation of peripheral nerve in man. *J. Neurol. Neurosurg. Psychiatr.* 10:137-40, 1947.
2. Cigánek L. Die elektroencephalographische Lichtreizantwort der menschlichen Hirnrinde. Bratislava: Publishing House of the Slovak Academy of Sciences, 1961. 152 p.
3. -----, Visual evoked responses. (Rémond A, ed.) *Handbook of electroencephalography and clinical neurophysiology*. Amsterdam: Elsevier, 1975. p. 8A-33-8A-59.