Between Reality and Prophecy

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The first paper identified 15 distinct components in the auditory evoked potential recorded from the human scalp: early potentials originating from the cochlea and brainstem, middle-latency potentials from the auditory thalamus and cortex, and long-latency potentials. The second paper found no significant effect of attention on these measurements until the long-latency potentials. (The SC1® and SC2® indicate that these papers have been cited in over 350 and 290 publications, respectively.)

The long-latency potentials showed two main effects of attention—an enhancement of the response to attended stimuli and the addition of a late negative-positive complex when the subject detected a target. A similar complex occurred alone (without any sensory evoked potential) when the subject detected occasional omissions in a regular train of stimuli. The human brain analyzes incoming information independently of attention, compares this information with what is expected, and initiates action on the basis of the comparison. I tried to express these ideas in the statement that "between the reality and the prophecy there rests the judgement of perception." However, my colleagues thought it too pomoous, and, although it was translated into Russian, it still represents its first publication in English (now that middle age has dissolved some of my youthful inhibitions).

The evoked potentials still contribute to the study of attention. Present research is concerned more with detecting between the different cerebral processes that occur during attention than with trying to prove that attention does not affect particular processes—an endeavor that easily leads to the distortions of the measuring technique. The evoked potentials cannot record everything that occurs in the human brain, but whatever is recorded must be considered in any formulation of how the brain works.