STERN VARIATOR, TONE VARIATOR

Maker, source: Max Kohl, Chemnitz

Year made, acquired: c. 1910

height: 56 *cm; base:* 19 x 19 cm

An adjustable resonator excited by a constant and regulated flow of air across the mouth, used as a source of moderately pure tone. The desired frequency is obtained by raising or lowering a piston within the resonator by means of graduated cam. The variations of pitch are continuous within the limits of each particular variator, which, in the above example is one octave. There are several models covering the ordinary musical range. (Warren, 1934).

Researchers used the above instrument as a source of a single, constant sound frequency. G. M Whipple added a gasometer to the device in order to produce a regulated air supply. (Titchener, 1915). The variator was also used as a source of changing auditory stimuli.

William Stern invented the Tone Variator in 1897 to study a person's sensitivity to "change" - or what he called the "apperception of change." By studying "change" as an entity in its own right, Stern moved beyond the confines of classical psychophysics, which investigated a person's sensitivity to differences in constant, discreet stimuli. He recounted later in his career that his work on "change," which began in the early 1890's, marked a "decisive metamorphosis" in his evolving intellectual outlook:

"The issue [apperception of change] was raised by a psycho-physical proposition: I wanted to discover the "sensitivity," not as Fechner and his successors, for two barely distinguishable constant stimuli, but for the continuous change of one stimulus into another. At first I conceived the problem in purely sensationist terms, sought to determine thresholds experimentally, raised the question of the possible existence of "transition feelings," etc. Soon, however, the sphere of my inquiry widened in the direction of descriptive and humanistic problems." (Stern, 1930)

In the Literature:

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Whipple, G. M. (1901). An analytic study of the memory image and the process of judgment in the discrimination of clangs and tones. *American Journal of Psych*ology, vol. 12, pp. 409 -457; vol. 13, pp. 219-268.