Classics in the History of Psychology

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Introduction to:

"Perception: An introduction to the *Gestalt-Theorie*" by Kurt Koffka (1922)

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Last revised February 2000.

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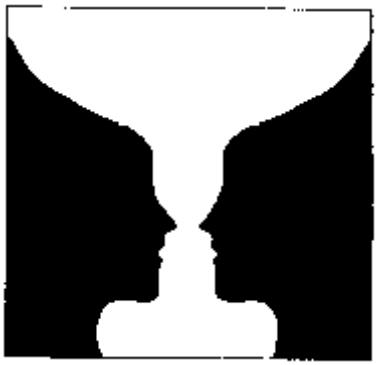
1. The *Gestalt* movement initially grew out of a problem that bedeviled 19th century perception theory. If all perception is composed of "bundles" of sensory elements, as many prominent psychologists of the time thought, what are the elements that go into the perception of space and the perception of time? The Austrian physicist and philosopher Ernst Mach (1838-1916) had argued that "space-forms" and "time-forms" are separate elements unto themselves. Thus, if I see the geometrical form of a circle, in addition to sensing each individual element, I sense a circular "space-form" as well; if I hear a melody, I sense an over-all "time-form" in addition to the tone sensations of the tune. Another Austrian philosopher, Christian von Ehrenfels (1859-1932), extended this line of reasoning, claiming that in addition to the sensory elements of a perceived object, there is an extra element which, though in some sense derived from the organization of the standard sensory elements, is an element unto itself. He called this extra element *Gestalt-qualität* or "form-quality." For instance, when one hears a melody, one hears the notes *plus* something in addition to them which binds them together into a tune -- the *Gestalt-qualität*. It is the presence of this *Gestalt-qualität* which, according to Von Ehrenfels, allows a tune to be transposed to a new key, using completely different notes, but still retain its identity

2. For the *Gestalt* psychologists, the true nature of relations between parts and wholes had been inverted by earlier psychologists such as Mach and Von Ehrenfels. Max Wertheimer (1880-1943), founder of the *Gestalt* school, turned their theories around, saying "what is given me by the melody does not arise ... as a *secondary* process from the sum of the pieces as such. Instead, what takes place in each single part already depends upon what the whole is," (1925/1938). In other words, one hears the melody first and only then may perceptually divide it up into notes. Similarly in vision, one sees the form of the circle first -- it is given "im-mediately" (*i.e.* its apprehension is *not mediated* by a process of part-summation). Only after this primary apprehension might one notice that it is made up of lines or dots or stars.

3. Some of their primary evidence for this view came from the examination of "reversible" figures such as the Rubin vase, a figure that can be seen either as a white vase on a black background, or black profiles of two human faces on a white



background. If one were to make a list of all the individual sensations involved when one sees this figure when seen in its vase aspect, it would be identical to a list of all the sensations when it is seen in its profiles aspect. Nevertheless, the two perceptions are very different. Therefore something central must have been lost in the process of decomposing the two main percepts into their presumed elements. It was with this radical change in orientation that *Gestalt* psychology distinguished itself from the varieties of experimental phenomenology which had gone before.

4. *Gestalt-Theorie* was officially initiated in 1912 in an article by Wertheimer on the phi-phenomenon; a perceptual illusion in which two stationary but alternately flashing lights appear to be a single light moving from one location to another. Contrary to popular opinion, his primary target was *not* behaviorism, as it was not yet a force in psychology; his paper came one year *prior* to J. B. Watson's (1878-1958) "Psychology as the Behaviorist Views It" (1913). The aim of his criticism was, rather, the atomistic psychologies of Hermann von Helmholtz (1821-1894),Wilhelm Wundt (1832-1920), and other European psychologists of the time.

5. The two men who served as Wertheimer's subjects in the phi experiment were colleagues of his: Wolfgang Köhler (1887-1967) and Kurt Koffka (1886-1941). They became co-founders of the new school of psychology. Köhler was an expert in physical acoustics, having studied under physicist Max Plank (1858-1947), but had taken his degree in psychology under Carl Stumpf (1848-1936). Koffka was also a student of Stumpf's, having studied movement phenomena and psychological aspects of rhythm. In 1917 Köhler (1917/1925) published the results of four years of research on learning in chimpanzees. Köhler showed, contrary to the claims of most other learning theorists, that animals can learn by "sudden insight" into the "structure" of a problem, over and above the associative and incremental manner of learning that Ivan Pavlov (1849-1936) and E. L. Thorndike (1874-1949) had demonstrated with dogs and cats, respectively.

6. The terms "structure" and "organization" became focal for the *Gestalt* psychologists. Stimuli were said to have a certain structure, to be organized in a certain way, and that it is to this structural organization, rather than to individual sensory elements, that the organism responds. When an animal is conditioned, it does not simply respond to the absolute properties of a stimulus, but to its properties *relative* to its surroundings. To use a favorite example of Köhler's, if conditioned to respond in a certain way to the lighter of two gray cards, the animal generalizes the *relation* between the two stimuli rather than the *absolute properties* of the conditioned stimulus: it will respond to the lighter of two cards in subsequent trials *even if the darker card in the test trial is of the same intensity as the lighter one in the original training trials*.

7. In 1921 Koffka published a *Gestalt*-oriented text on developmental psychology, *Growth of the Mind*. With the help of American psychologist Robert Ogden, Koffka introduced the *Gestalt* point of view to an American audience in 1922 by way of a paper in *Psychological Bulletin*. It is this article that is reproduced here. It contains criticisms of then-current explanations of a number of problems of perception, and the alternatives offered by the *Gestalt* school.

8. Koffka soon moved to the United States, serving stints at Cornell in 1924-1925, Chicago in the summer of 1925, Wisconsin in 1926-1927, and finally Smith College in Massachusetts, where he settled permanently in 1927.

9. In 1935 Koffka published his *Principles of Gestalt Psychology*, the book in which he reformulated the basic question of perception research. In the past it had often been assumed that there was really no need to explain the features of veridical perception. A 2-inch line, it was assumed, looks longer than a 1-inch line just because it *is* longer. It was thought that only in cases of "illusory" perception must explanation, whether psychological or physiological, step in and do the work. Koffka rejected this approach. Regardless of the veridicality of perception, the researcher must always ask the question, "Why do things look as they do?" The book detailed the phenomenological and holistic approach to this question which the *Gestalt* movement embraced as well as reviewing the extensive research which had been conducted up to that time in support of *Gestalt* orientation.

10. More than presenting an alternative view of the basic approach to questions of perception, he also laid out the *Gestalt* vision of the scientific enterprise as a whole. Science, he said, is not the simple accumulation of facts. What makes research scientific is the incorporation of facts into a theoretical structure. Correspondingly, scientific knowledge is not just knowledge of facts but "knowledge of the rational system, the interdependence of all facts" (p. 6). Koffka went on to indict scientists for forgetting that facts that do not fit into theories are facts nevertheless. "Science," he wrote "is apt to forget that it has not absorbed all aspects of reality, and to deny the existence of those which it has neglected" (p. 8). Instead, the prime motivation of the scientist, Koffka claimed, is the integration of all facts into a single system. If some facts are recalcitrant, so much the worse for science, not the facts.

11. The goal of *Gestalt*, on the other hand, was to integrate the facts of inanimate nature, life, and mind into a single scientific structure. This meant that science would have swallow not only what Koffka called the *quantitative* facts of physical science but the facts of two other "scientific categories" as well. The first of these was the category *order*. Order was said to be a category of facts evident in living things, but one that does not exist at the non-biological level. Koffka wrote, "in inorganic nature you find nothing but the interplay of blind mechanical forces, but when you come to life you find order, and that means a new agency that directs the workings of inorganic nature, giving aim and direction and thereby order to its blind impulses" (p. 16). The second of the new categories to be incorporated by science was *Sinn*, a German word which has been variously translated as significance, value, and meaning. Without incorporating the meaning of experience and behavior, Koffka believed that science would doom itself to trivialities in its investigation of human beings.

12. Having survived the onslaught of the Nazis up to the mid-1930s (see Henle, 1978), all the core members of the *Gestalt* movement were forced out of Germany to the United States by 1935 (Henle, 1984). Köhler published another book, *Dynamics in Psychology*, in 1940 but thereafter the *Gestalt* movement suffered a series of setbacks. Koffka died in 1941 and Wertheimer in 1943. Wertheimer's long-awaited book on mathematical problem-solving, *Productive Thinking* was published posthumously in 1945 but Köhler was now left to guide the movement without his two long-time colleagues.

13. This is not say the *Gestalt* movement was moribund by the end of the Second World War. Many German ex-patriots were busily working on *Gestalt*-oriented research. Nevertheless, although some *Gestalt* concepts caught on in North American psychology -- particularly in perception -- many psychologists were skeptical of their

"insight" theory of learning, their incompletely explicated references to "structure," their speculative accounts of brain activity, and above all their holistic orientation. Furthermore, the rise to prominence of Hull's learning theory pushed back many of the gains *Gestalt* had made in the U.S. in the 1930s and by the time drive theory crumbled in the 1950s, extensive theorizing of any kind had become an unpopular commodity.

14. Some attempts were made at rewriting *Gestalt* concepts in more "scientific" language (*e.g*. Hochberg & McAlister, 1953; Attneave & Arnoult, 1956) but these proved to be unsatisfying to both sides. Rudolf Arnheim (1986), a student of Wertheimer's, has written about the results of such attempts: "when those who were trained under the founders of *Gestalt* psychology read what is being said about *Gestalt* theory today, they are often overcome with the sense of strangeness experienced when one meets familiar persons or places in a dream."

15. An excellent book-length history of *Gestalt* psychology can be found in Ash (1995).

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