NOTES AND DISCUSSIONS

CUES

Enough interest attaches to the use of the word cue in the psychology of perception to make it desirable to find out how the word came into use and why it was employed in situations where—nowadays at least—clue might seem a more appropriate term.

Of cue Warren says: "1. secondary stimulus, usually of faint intensity, which serves to guide, usually subconsciously, the organism’s movements or responses; 2. the stimulus which controls human behavior in such serial responses as maze running." He goes on to remark that a cue is usually "an obscure identifying mark," which is used as a guide or as the basis of decision in discrimination or choice. He adds that cue must be distinguished strictly from clue, "which involves higher mental processes." For clue, he says, "see cue." He gives Anhaltspunkt as the German for cue, but that comes nearer meaning frame of reference. If cue in psychology is a figure of speech borrowed from the theater, then the German is Stichwort, which also means a stereotype phrase or cliché. We have not found the standard German writers on perception using a theatrical analogy.

The standard American usage is shown by these examples. Titchener (1910): "In monocular vision the sensations of accommodation, and in binocular vision the sensations of convergence, give fairly accurate cues to the position of objects in external space." Not clues; cues. Woodworth. (1938): "The experimenter thus produces a conflict of cues. If he applied equal intensity to the two ears along with a time difference, the intensity cue indicates a source in the median plane while the time difference locates it on the side of the earlier reception of the sound. Which of the conflicting cues will the listener follow in his localization?" Munn (1946): "Psychological cues. Several psychological cues of distance are illustrated in Figure 161. All of these are monocular cues, and they could be represented on a photograph, as well as on a single retina. The relative size of objects is an obvious cue of distance. . . . Interposition is another obvious cue. . . . Aerial perspective . . . is an important monocular cue. . . . Shadows also provide cues of depth." The theatrical meaning seems to be gradually disappearing. Titchener said cue to; Munn says cue of.

In this connection it is important to remember that the doctrine of

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2 Ibid., 47.
4 R. S. Woodworth, Experimental Psychology, 1938, 525f.
5 N. L. Munn, Psychology, 1946, 355f.
unconscious inference was in the air when terminology was becoming settled. Helmholtz expounded it in 1855. Wundt used it in 1858. Helmholtz made the case most effectively for it in 1866, but Wundt reacted against Helmholtz and the doctrine. Helmholtz' position was essentially functional. Clue would have been a word he could have used for the data upon which the perceptual inferences were founded. Actually he used such functional phrases as die Motive der Tiefenanschauung and die Momente, both of which Southall has translated factors. The point is that Helmholtz, in discussing facts, seldom stuck to the verbiage of any formal theory. He hardly mentioned unconscious inference in describing color contrast, although we know this was his principle of explanation of this phenomenon. Wundt, however, was reacting away from the functional interpretative doctrine of unconscious inference, and his reaction is traceable in his writings.

The starting place for all this was undoubtedly Lotze's theory of local signs (Zeichen). A sign is an indicator. It points. It has a use. It shows where the stimulation is. Had the discussion been in English and the words cue and clue available in the latter half of the nineteenth century, we might have heard about 'local cues' from those who thought that the signs were a signal to the perception as to what it should be of, and about 'local clues' from those who thought that the organism—instantaneously and unconsciously—figured out (inferred) the position of an object from the data provided by the signs.

Let us see what Wundt did with these indicators of the third dimension as the years went by. In 1874, in the first edition of his Physiologische Psychologie, Wundt was speaking of die secondären Hülfsmittel der Tiefenvorstellung and tying them up with Lotze's Localzeichen. The second edition (1880) elevates this phrase to the section title, and the third edition (1887) continues it. In the fourth edition (1893), Wundt seemed to become aware that Hülfsmittel is a functional word and changed

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7 H. v. Helmholtz, Handbuch der physiologischen Optik, 3 ed., III, 1910, (which is the same as 1 ed., 1866), 244; and in general, 235-245.
10 R. H. Lotze, Medicinische Psychologie, 1852, 330-337.
12 Ibid., 481-483, 624-631.
the title to the more descriptive *Die secondären Bedingungen der Tiefen-
vorstellungen*.\(^{15}\) In the fifth edition (1902) the section became *Directe
und associative Factoren in Tiefenvorstellungen*, and elsewhere *primäre
und secondäre associative Factoren*,\(^{16}\) terms which were continued in the
last edition (1910).\(^{17}\) We can see Wundt in this thirty-six years of
development getting away from a functional to a more structural conception
of perception. You can have secondary aids (*Hilfsmittel*) for perceiving,
for detecting the nature of the external world, but, if perception is to be
regarded as a composite of mental elements and not as a device for survival,
then it is better to talk about the secondary associative factors in
perception.

The functional view is the natural and common-sense view. Thus Lotze
with his local signs was thinking of their use in the comprehension of
space. We can find Lotze in 1881 speaking of the *Leitfaden* which the
impressions furnish for visual localization.\(^{18}\) Both Herrick\(^{19}\) and Ladd\(^{20}\)
translate *Leitfaden* as *clue*, and this may easily be the first use of that term
in connection with perceiving.

It seems plain, therefore, that the Americans did not import the con-
ception that lies in the word *cue* from Germany, although they did get
from Wundt and the others the notion of perception as a structure and
not as a process of detecting the nature of the external world.

There are just as many ways of not saying *cue* in English as there are
in German. Dewey in 1886 spoke of *local signs* and *interpretations*.\(^{21}\)
Ladd said, in 1887, *motifs*.\(^{22}\) In 1889 Baldwin got the matter stated in
terms of *reactions*.\(^{23}\) Calkins spoke of *signs* in 1910,\(^{24}\) and Pillsbury of
*estimates* in 1916.\(^{25}\) Nor did the French translator see any harm in render-
ing Titchener's "sensations of accommodation and . . . convergence give
fairly accurate cues to the position of objects"\(^{26}\) as "les sensations
d'accommodation [et] . . . de convergence . . . nous suggèrent d'une
façon assez exacte la position des objets."\(^{27}\) It is a question, however,

\(^{19}\) *Idem*, *Outlines of Psychology*, Eng. trans. by C. L. Herrick, 1885, 39.
\(^{21}\) J. Dewey, *Psychology*, 1886, 162.
\(^{22}\) G. T. Ladd, *Elements of Physiological Psychology*, 1887, 441.
\(^{26}\) Titchener, *loc. cit*.
whether a *suggestion* is as compelling as a *cue*. The thought implicit in cue seems to be that perception has learned its part and will surely realize itself as soon as the signal is given.

The first important use that we can find of the word *cue* is by James in the *Principles* in 1890, but he is there employing the word in its usual meaning of a signal for action. James was discussing the will and arguing against feelings of innervation. He said: "If we call the psychic antecedent of a movement the latter's *mental cue*, all that is needed for invariability of sequence on the movement's part is a *fixed connection* between each several mental cue, and one particular movement. For a movement to be produced with perfect precision, it suffices that it obey instantly its own mental cue and nothing else, and that this mental cue be incapable of awakening any other movement."\(^8\) That is an apt figure and James continues to use it throughout his chapter.

So far as we can determine the use of *cue* for perception is original with Titchener in 1910. In the 1896 *Outline* he employed the term *secondary criteria\(^9\)* which smacked more of unconscious inference than even Wundt's *Hülfsmittel*, and he anticipated the Wundt of 1902 by classifying all data which gave a perception its peculiar significance as *associative supplementation*.\(^{10}\) In the 1910 *Text-book* we get *cues, secondary criteria* and *indirect aids*.\(^11\) In the 1915 *Beginner's* he puts *visual cues* (to distance) in black faced type, lists the cues as linear perspective, aerial perspective, chiarocuro, interposition, number and movement, says they are secondary and not essential to the perception of distance, and then comes to the cues that count, the kinesthetic sensations of convergence and accommodation.\(^12\) Here we read such sentences as: "We notice the number of objects that the eye must traverse to arrive at its goal; and the more numerous the objects, the farther off do we take the goal to be." The number of objects is a *cue to* the distance. It is hard to believe that Titchener did not really mean *clue*. It may be that he was avoiding, as Wundt seemed to do, the notion of unconscious inference. For a *clue* the mind would act as detective. For a *cue* perception simply takes the stage. Why else this unusual use of a word?

We have already caught Lotze (1881) using *clue* (*Leitfaden*) for the perceptual data. In 1904 James R. Angell, the functionalist, also employed it. "We use in actual practice other forms of criteria for distance. Thus

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\(^8\) W. James, *Principles of Psychology*, 1890, II, 497.
\(^10\) Ibid., 204f.
\(^12\) Titchener, *A Beginner's Psychology*, 1915, 126f.
the apparent size of the object is used as a clue to its distance."\(^{33}\) Recently, one of us has revolted against what he thinks is a strange use of the word cue, and has gone functional in substituting clue for cue throughout the length of *Psychology for the Armed Services*.\(^{34}\) He thought that soldiers, in the forefront of the struggle for survival, should learn to think of perception as a useful instrument for penetrating the perpetual camouflage of the external world.

A note of this sort has no conclusion. Usage ultimately determines usage. The process is autocatalytic. If the psychologists are accustomed to follow Titchener and say cues to, or Woodworth and Munn and say cues of, they will probably keep on. On the other hand, it would not be inappropriate in functional America to change to clues, at least for textbooks, and in doing that the author would provide the student with a more vivid figure of what the mind is up to when it undertakes to perceive.

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THE 1947 MEETING OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

The fifty-fifth annual meeting of the APA was held in Detroit, Michigan, September 9 to 13, 1947. Approximately 2,000 members and guests attended.

The program included a variety of different kinds of meetings. Approximately fifty sessions were devoted to the reading of short reports of experimental studies. Each of these sessions included four papers. The Divisions of the APA arranged a total of twenty-four symposia for the discussion of technical problems of interest to the members of the several Divisions. General lectures were given on three evenings of the week. On Wednesday evening, Professor Henry Brosin, Department of Psychiatry, University of Chicago, discussed "Some Contributions of the Clinic to Research Methods." On the same evening, short papers were delivered by several of the foreign psychologists who were present as guests of the Association. On Thursday evening, Dr. Carl Rogers delivered the annual address of the President. His topic was "Some observations on the organization of personality." On Friday evening, Mr. Ralph M. Evans,

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\(^{34}\) E. G. Boring, ed., *Psychology for the Armed Services*, 1945. The responsibility for the literary form of this many-authored work is solely the editor's.