

43. 1979, 1983 p.146.
44. Titchener, 1909 p.19.
45. Titchener, 1910 p.511.
46. Titchener, 1909 p.147.
47. Holt, 1964 p.256.
48. Danziger, 1980 p.256.
49. The classic paper on this is by Orne [1962].
50. Danziger, 1979 pp.222f; Leahey, 1981 pp.279-80.
51. Danziger, 1980.
52. In this later period of his career, during which he was professor at Vienna, Bühler taught and significantly influenced the young Karl Popper [Popper, 1976 §15]. He may also have had a significant influence (perhaps reactive) on the thought of the later Wittgenstein [Toulmin, 1969; Bartley, 1973]. Bloor [1983 §2.5] depicts Wittgenstein's later views as largely a reaction to the imageless thought controversy itself.
53. See Köhler, 1929 chap.3.
54. Koffka, 1935 p.73.
55. See e.g. Wertheimer, "Experimental Studies on the Seeing of Motion" - in Shipley [1961 pp.1084-6] (original German 1912); Köhler, "Physical Gestalten" - in Ellis [1938] (original German 1920); Koffka [1935 pp.53ff.]; Köhler [1940]; Köhler [1971 part 4] (originals 1930, 1957, 1965).
56. See e.g. Köhler, 1929 p.150; Koffka, 1928 pp.252,258-9.

Notes to §I.B.2.

1. 1978 pp.174-5.
2. Holt, 1964 p.255.
3. E.g. Holt [1964], A. Richardson [1969 p.ix], Haber [1970], Paivio [1971 chap.1], Sheehan [1972 - Preface], Kessel [1972], Kosslyn [1980 chap.11], J.T.E. Richardson [1980 chap.2], Morris & Hampson [1983 chap.1 §I] and Bugelski [1984].
4. Holt, 1964 pp.255-6; Beloff, 1977.

5. 1971 p.6.

6. Skinner, 1953 pp.260,271. More recently he has allowed himself to speak of "the capacity to visualize" and even "seeing in the absence of the thing seen" [Skinner, 1976 pp.91f].

7. Paivio, 1971 p.6.

8. 1964 p.256.

9. Kessel, 1972 p.149.

10. Price, 1953 p.235.

11. Targ & Puthoff, 1974.

12. Anderson & Bower's [1973 pp.449-461] critique of imagery theories of memory was also important here.

13. Galton, 1880, 1883 pp.83-144. This work was "the first extensive use of the psychological questionnaire" [Schultz, 1981 p.128].

14. A study by Roe [1951] does not really bear out Galton's view that scientists are largely non, or very poor, imagers, but Marks has found a negative correlation between self-ratings of imagery vividness and examination grades amongst chemistry students [personal communication - 1984], suggesting that perhaps less vivid imagers do make better scientists.

15. The specific examples quoted by Galton [1880 pp.305-6;1883 pp.91-2] mostly, in fact, admit to occasional vague and dim images when awake, or hypnagogic or dream images. David Marks, perhaps the leading contemporary researcher on individual differences of self-reported imagery vividness, is inclined to deny the existence of absolute non-imagers:

Rather than being fixed, the ability of a person to evoke and utilise imagery is influenced by situational variables - given appropriate conditions even so called "poor" visualizers can evoke visual images. The potential for imagery would appear to be universal. [Marks, 1972 p.105].

Sommer's [1978 chap.7] case study of an extreme 'non-imager' seems to bear out this conclusion; after some prodding the subject admitted to imagery in his dreams. There do seem to be rare cases of people totally losing mental imagery after brain damage. However, rather than reflecting a loss of the underlying imagery function this may well be best explained in terms of a broken connection between the brain areas where images are formed and the language centres which would have to be involved in reporting it (even to oneself) [Basso, Bisiach & Luzzatti, 1980]. (See Dennett [1978] for accounts of consciousness and of imagery conformable with such an explanation.) Some

of the healthy people who report very little or very poor imagery may, possibly, be suffering from a subclinical and partial 'disconnection' of this type [see Marks, 1986 p.237].

16. Abelson, 1979.

17. Abelson, 1979 p.549.

18. See DiVesta, Ingersoll & Sunshine [1971]. Intons-Peterson [1983] reports strong effects of experimenter's expectations (mediated through unconscious differences in speed of speaking whilst giving the subjects their instructions) on several other types of imagery experiment (c.f. Neisser [1970 pp.170-173, 1972 pp.238-40]). The matter is far from clear-cut however - see Richardson [1980 p.121] and Marks [1983b] for discussion.

19. See Denis & Carfantan [1985] for some evidence. Price [1953 p.234] provides a good anecdote.

20. I do not say that such 'theoretical' and 'social' influences are the only reason for the individual differences in people's self-ratings of imagery vividness etc.. Although results in the field seem to be somewhat conflicting and confusing [see Sheehan, Ashton & White, 1983 for review] David Marks and other workers do seem to have found genuine and interesting correlations between such ratings and several other traits (e.g.: ability to remember pictures; characteristics of eye movement patterns in vision; hypnotizeability) [see Marks, 1983a,b]. I do not even assert that the influence of theories fully accounts for the seeming difference between intellectuals and others. Galton himself suggests that there may be a certain antagonism between being a habitual vivid imager and "habits of highly-generalised and abstract thought" (although he still thinks that the best minds should be able to use imagery or "abstract" thinking at will) [1883 p.88]. I am inclined to think there is something in this. I think that I can reconcile it with my iconophilic tendencies, although it would be difficult to explain just how at the present stage of our discussion [but c.f. Price, 1953 pp.290ff; Marks, 1983a p.100].

21. Quoted by Galton [1883 pp.85/91]. The gaps are Galton's.

22. See Holt [1964 p.261] on this tendency in an iconophobic psychological culture. Sarbin & Juhasz [1967] set it in a much longer historical context.

23. Our E-F-M distinction finds a rough parallel in the distinction recently made by Ronald Finke [1985] between what he calls "structural", "functional" and "interactive" "theories" of imagery. However, these seem to me to represent not so much competing theories (they are by no means mutually exclusive) as different classes of question one might wish to ask about imagery and its

relationship with perception. The "structural theories" concern themselves with in just what respects imagery experiences and perceptual experiences resemble one another. Clearly any iconophile^E may reasonably take an interest in such questions. The iconophile^F will also want to be able to say precisely what cognitive functions imagery subserves. Such issues are dealt with by Finke's "functional theories". The "interactive theories" are supposed to concern themselves with the possible interactions between imaginal and perceptual processes. Knowledge about these interactions is of considerable relevance to theoretical views about the mechanisms underlying image formation.

24. Although a thorough-going iconophobia^E must surely entail taking no position at all over mechanism.

25. See §§ I.A.1 and II.A.2.

26. See chap.II.C.

27. Hebb, 1968 p.476; 1969 p.57.

28. 1949 chap.8.

29. 1958.

30. 1970.

31. Ryle, 1979 chap.3.

32. See any of his works in the bibliography.

33. Pylyshyn, 1973.

34. Paivio, 1975 p.277; 1977 §3/3.2.

Notes to §I.B.3.

1. Watson, 1930 p.5-6.

2. Watson, 1914 pp.16f; 1913b pp.241f.

3. Watson [1913b pp.423-4; 1914 pp.19/324]; for later, more complete statements of this view see [1919 chap.IX; 1930 chaps.X-XI].

4. 1913b p.424; 1914 p.20.

5. Cohen, 1979 chap.1.

6. Burnham, 1968 p.150.

7. Watson, 1924 pp.vii-ix.