I.B

The Banishment of the Mental Image from Experimental Psychology.

§I.B.1. The "Imageless Thought" Controversy.

We have argued above that the faculty of imagination was put forward by Aristotle in order to solve a central problem of epistemology, the problem of bridging the gap between material effects in the sense organs and the acquisition of empirical knowledge by the reason. However, imagination is supposed to be a faculty of the mind, a psychological faculty. It is also a psychological hypothesis, albeit a venerable one, that the function of "common sense", of integrating and making intelligible the deliverences of the special senses, is bound up with the quasi-perceptual experiences commonly called mental images. In order to establish whether the image forming faculty can actually fill the epistemological rôle (and just what the implications might be) what we really need is a good, detailed, scientific account of the formation of images and of their place in our thought processes (1*). When we turn to the modern science of psychology, however, we do not find a generally agreed account. Psychologists past and present differ widely over the underlying mechanisms of imagery, over its significance and function in cognition, and even over whether it exists at all. I shall be considering the question of the mechanism of imagery in part II. However, it is my general contention that the

philosophical and psychological problems of imagination and imagery are inextricably bound up with one another, and neither can be properly understood outside of the historical context of their interaction. In this chapter I want to map out the historical and conceptual reasons which have led the psychology of imagery to its current problem situation.

It is generally agreed that psychology first constituted itself as a science, as an experimental discipline institutionally distinguished both from philosophy and from other scientific fields, with the work of Wilhelm Wundt in the latter part of the nineteenth century {2}. If we accept this it seems fair to say that "imagination", despite its significance in the 'philosophical psychologies' and epistemologies of Hume, Kant and others {3}, and its continuing importance in 'folk' psychological explanations, has never been an important concept in psychological science. One might conjecture that this has been a consequence of the hyperinflation which the term underwent at the hands of Idealist philosophers and Romantic aestheticians around the beginning of that century {4*}. The recognition of the faculty's centrality to creative thinking was no doubt an important insight, but the consequent use of the concept to aggrandise the rôle of the poet {5} may have done little to endear it to more prosaic souls. Likewise, although Coleridge's distinctions between "primary imagination", "secondary imagination" and "fancy" may have been of considerable value to the theory

of criticism, consider his characterisation of the fundamental imaginative/perceptual faculty:

> The primary imagination I hold to be the living power and prime agent of all human perception, and as a repetition in the finite mind of the infinite I AM. {6}.

This was hardly calculated to recommend the concept to self-consciously hard-headed scientists, at pains to differentiate their approach from the mere philosophising of recent predecessors. (It is worth noting, however, that this passage reveals how Coleridge - in common with other Romantic theorists - continues in the Aristotelian tradition. That is, he still regards imagination as, in the first place, the central perceptual faculty.)

The mental image, by contrast, has by no means been neglected by the scientists, and if we are to develop a scientifically informed account of the imagination we must, and will, approach it from this direction. However, even the concept of the image has had an extremely chequered career. Roughly speaking, during the early years of scientific psychology (up to about the mid 1910s) the mental image was theoretically central to the science; for the next fifty years or so imagery was hardly ever mentioned; and from about the mid 1960s it has again been the subject of a great deal of active research and controversy {7*}. The reasons for this precipitous decline and revival are not without interest.

Wundt's new science of psychology was supposed to be an investigation into the conscious contents of minds.

The aim of experimental psychology was to be

> the investigation of conscious processes in the modes of connection peculiar to them. {8}.

So as he saw it:

> The whole task of psychology can therefore be summed up in these two problems: (1) What are the elements of consciousness? (2) What combinations do these elements undergo and what laws govern these combinations? {9}.

These elements, on Wundt's view, would be either cognitive or affective, the cognitive elements being "sensations" and the affective elements, "feelings". The "psychical compound" formed from a combination of sensations was an "idea". A central part of his research program, then, was devoted to the analysis of such "ideas" into their elementary sensations (characterised as to mode, quality, intensity and duration). This was done by having experienced "observers" provide introspective reports on their experiences under carefully controlled and systematically varied conditions of stimulation {10}. Recent commentators have stressed just how circumscribed the use of introspective technique was in Wundt's hands, to the extent that it is perhaps misleading to call his method "introspective" psychology at all {11}. He was highly sensitive to standard criticisms of introspection, such as the contention that the very attempt to observe our own mental activities will itself alter them {12}, and he thus limited the use of "internal perception" to situations where the causes of the mental events could be strictly controlled and the results shown to be replicable. In practice this meant that the experiments of him and his

students dealt mostly with sensation and perception. There were occasional hopeful forays into areas like memory and attention, but it was regarded as quite impossible to make the introspective study of either the affective realm, or of 'higher' cognitive processes such as thinking, at all scientific {13*}. However, Wundt made it quite explicit that both "perceptions" and "memory images" were "ideas" in his sense, and were not to be considered different types of mental object {14}. Clearly it remains fair to say that the study of the mental image was central to Wundtian psychology. At this time the reality and importance of the mental image was not open to question; it was a central explanatory concept of psychological science. The cognitive mental contents, the subject matter of experimental psychology, just were images.

The first real challenge to the centrality of the mental image for psychological science came from the group set up at Würtzburg by Wundt's former assistant, Oswald Külpe. Külpe had fallen under the influence first of Machian positivism {15} and subsequently, and increasingly, of the intentionalistic 'act psychology' deriving from the work of Brentano {16}. He and his students, notably Mayer, Orth, Marbe, Ach, Messer, Watt and Bühler, soon became dissatisfied with the Wundtian methodological restrictions. From about 1900 they attempted to liberalise the introspective method so that it could deal with 'higher' processes {17*}. In 1901 Mayer & Orth carried out an experiment on word association, where the subjects were

asked to report everything that had passed through their minds between hearing the stimulus word and giving the response {18}. Seemingly unexpectedly (although two of the four introspective "observers" were the authors themselves)

> The subjects frequently reported that they experienced certain events of consciousness which they could quite clearly designate neither as definite images nor yet as volitions. For example, the subject Mayer made the observation that, in reference to the auditory stimulus word "metre" a peculiar event of consciousness intervened which could not be characterized more exactly, and which was succeeded by the spoken response "trochee". {19}.

These "peculiar", non-sensuous "states of consciousness" were provisionally designated **Bewusstseinslagen** {20*}, and they were subsequently found more and more in later Würtzburg experiments, taking on an increasing theoretical significance for the school as time went on. Ach, in 1905, introduced the largely overlapping, but more explicitly intentionalistic, concept of the **Bewusstheit** or "awareness" an unanalysable "impalpably given 'knowing'" {21*}, and by 1907 Bühler was identifying these imageless contents simply as "thoughts" (**Gedanken**) {22}. Bühler investigated thinking simply by presenting his trained "observer" (often Külpe himself) with some rather gnomic statement or question, whose meaning had to be divined. The observer would then be expected to give an introspective report on the thought processes involved {23*}. By now it was no surprise that the reports seemed to indicate that thinking was very largely to be accounted for in terms of such non-sensuous (but inherently intentional) contents. Külpe came to argue that Wundt's theoretical preconceptions and methodological

restrictions had blinded both him and his experimental observers to the possibility of such "imageless" thoughts {24}. As an example of his own teams more open minded style Külpe reports the following experiment, and gives his gloss on the results:

> The subject is asked: "Do you understand the sentence: Thinking is so extaordinarily difficult that many prefer to judge?" The protocol reads: "I knew immediately after the conclusion of the sentence what the point was. But the thought was still quite unclear. In order to gain clarity I slowly repeated the sentence and when I was finished with that the thought was so clear that I can now repeat it: To judge here implies thoughtless speech and a dismissal of the subject matter in contrast to the searching activity of thinking. Apart from the words of the sentence which I heard and then reproduced, there was nothing in the way of images in my consciousness." This is not just a simple process of imageless thought. What is notable is that [subjects] stated that understanding proceeded generally in this fashion with difficult sentences. It is thus not an artificial product of the laboratory, but the blossoming life of reality that has been opened up by these experiments. (...)
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> Who would experience images here and for whom would such images be the basis, the inescapable condition of comprehension? And who wants to maintain that words alone suffice to represent the meanings? No, these cases provide proof for the existence of imageless conscious contents, especially thoughts. {25}.

Unsurprisingly, Wundt and his more loyal followers, particularly Titchener in the United States, refused to accept these new methods and conclusions, and a heated dispute - which became known as the "imageless thought" controversy {26} - ensued between them and the Würtzburgers {27*}. Wundt's position seems to have been that imagery was

indeed present at all stages of the thinking process, but it was not reliably observed in the Würtzburg experiments because attention had to be initially focused on the solving of the problem rather than on the conscious contents themselves {28}. He had always insisted that introspective reports be made unreflectively, as soon as the content appeared in the mind. By their very nature the Würtzburg experiments involved retrospective recall (or was it reconstruction, in response to the leading questions of the experimenter?) of the conscious events leading up to the production of the problem solution, associated word, or whatever. It was precisely because of such problems that Wundt had restricted the scope of his own laboratory's experimental work so tightly {29}. As he saw it the Würtzburgers had turned their back on his new science. Their experiments, he said:

> are not experiments at all in the sense of scientific methodology; they are counterfeit experiments that seem methodical simply because they are ordinarily performed in a psychological laboratory and involve the coöperation of two persons, who purport to be experimenter and observer. In reality, they are as unmethodical as possible; they possess none of the special features by which we distinguish the introspections of experimental psychology from the casual introspections of everyday life. {30}.

Humphrey, in what is probably still the fullest and best known account of the Würtzburg work and the "imageless thought" controversy, defends the Würtzburgers, arguing that Wundt's criticisms would really apply to all forms of introspective experiment, including his own {31}. However, recent accounts of Wundt's work make his stand appear much

more principled and consistent. {32*}. It seems probable that Humphrey has fallen prey to the tendency, almost universal amongst English speaking psychologists until quite recently, to interpret Wundt very much in the light of Titchener's writings {33}. Titchener seems to have been rather inclined to present himself as Wundt's apostle to the Anglophones, and the classic status of the work of Titchener's pupil E.G. Boring in the historiography of psychology could only serve to reinforce this impression {34}. However, in reality Titchener's thought seems to have differed in some quite fundamental ways from that of his master. Unlike Wundt he was strongly influenced both by the Empiricist tradition of his native Britain (notably by James Mill) and, like Külpe, by the German positivism of Mach and Avenarius {35}. Thus, although he supported Wundt's identification of cognitive contents with images, in its methodology and intended scope his psychology had more in common with that of his Würtzburg opponents. Unlike Wundt, Titchener did not repudiate the attempt to investigate 'higher' thought processes by introspective experiment. His view seems to have been that if such experiments were properly carried out (notably, with properly trained "observers"!), faint, fleeting, perhaps often kinaesthetic images would be found where others reported only impalpable Bewusstseinslagen and the like {36}. The reader will not, perhaps, be surprised to hear that such images were indeed found during the investigations of thought processes carried out in Titchener's laboratory {37}.

Although Titchener claims to be subjecting the matter to empirical investigation in fact the notion that all mental contents were sensuous images or feelings was practically a conceptual truth for him and Wundt. He explicitly argued, against the Würtzburgers, that imagery was indeed **logically** sufficient to thinking. He claimed on the basis of his own introspections that images, albeit idiosyncratic ones, were perfectly capable of representing general ideas, and even abstractions. As against Berkeley's {38} claim that the "general idea", generic image, of a triangle could not be formed Titchener claimed:

> But I can quite well get (...) the triangle that is no triangle and all triangles at one and the same time. It is a flashy thing, come and gone from moment to moment: it hints two or three red angles, with the red lines deepening into black, seen on a dark green ground. It is not there long enough for me to say whether the angles join to form the complete figure, or even whether all three of the necessary angles are given. Nevertheless, it means triangle; it is Locke's general idea of a triangle; it is Hamilton's palpable absurdity made real. {39}.

Images could carry meaning, for Titchener, in virtue of their associated context of other images {40*}, and even abstractions such as meaning itself, were apparently imagable for him:

> I have been ideating meanings all my life. And not only meanings but meaning also. Meaning in general is represented in my consciousness by another of these impressionistic pictures. I see meaning as the blue-grey tip of a kind of scoop, which has a bit of yellow above it (probably part of the handle), and is just digging into a dark mass of what appears to be plastic material. {41}.

No doubt all this is highly unsatisfactory, but does anything more than its relative clarity make it seem any **more** unsatisfactory than the inherent intentionality of the mysterious, non-sensuous and non-verbal, **Bewusstheit** or **Gedanke**? Humphrey {42} again finds in favour of the Würtzburgers here, arguing, in effect, that the unsatisfactory nature of Titchener's account of meaning fatally undermines his critique of them. It seems to me that both sides are in equal trouble (a trouble shared, as we shall see, by both sides of what Johnson-Laird {43} has called the contemporary "thoughtless imagery" controversy). Titchener freely admits that the particular content of the images he describes is idiosyncratic (he attributes the scoop of meaning to schoolday admonitions to "dig out the meaning" of some Latin or Greek passage {44}), and that he himself is an unusually visually biased thinker. However, he clearly very much expects that if they were to introspect carefully and skillfully enough, everyone, even the Würtzburg observers, would discover their own mental contents to consist entirely of such images (plus feelings) in some modality or other. In everyday life, he claims, we are mainly interested in the **Function** of our thoughts, in what they are about:

> we have not the least desire or occasion to go behind the topic of thought to the psychological vehicle of that topic, to discover whether our friend is thinking in internal speech, or in visual images, or in conscious attitudes. But this question, of the mental stuff of which thought is made, is precisely the question that a descriptive psychology of thought has to answer. {45}.

In Titchener's view the Würtzburgers, because of the difficulty of the introspective tasks set, and the laxity of the method employed, were simply failing to achieve the proper task of psychology. They were mistaking an account of the functional relations of their thoughts, in more or less everyday terms, for a description of the nature of those thoughts:

> I submit that the [Würtzburg] observer is not describing his thought, but reporting what his thought is about; not photographing consciousness, but formulating the reference of consciousness to things: {46}.

Külpe, as we have seen, remained adamant that his group's researches showed that some thought contents were imageless.

The "imageless thought" controversy was never really resolved. Its upshot seems to have been rather to discredit the very aim of describing and analysing, of "photographing" the contents of consciousness {47}, at least as a branch of experimental science {48}. The introspective method which this called for seemed either to presuppose its own results or else to be so permissive as to allow little claim to scientific status at all. Psychologists in those times may not have been quite so sensitised as their modern colleagues to the way in which subjects will, quite innocently, tend to bias their responses to fit what they perceive as the experimenter's expectations {49*}, but in this case it must have been obvious. Both in Germany and in the United States, then very much the leading nations in psychology, the turning

away of interest from mental contents entailed a turning away of interest from imagery also. In America the Behaviorists reacted very sharply against all forms of introspection, and threw out images altogether. However, the Empiricist and positivist tendencies found in Titchener's thought very much remained {50}. German psychology, on the other hand, came even more increasingly under the influence of the intentionalistic "act psychology" of Brentano and his pupil Stumpf, and the "phenomenology" of their pupil Husserl {51}. Included in this movement were the 'Gestalt' school and former Würtzburgers such as Bühler {52*}. These psychologists started deliberately to do just what Titchener had accused the Würtzburgers of doing inadvertently: concerning themselves with what thoughts are **about** rather than with what they are inherently **like**. The Gestaltists were explicitly critical of the introspective methods of those like Wundt and Titchener {53}. Although they continued to rely a great deal on the verbal reports of subjects under various conditions of stimulation they were interested not in any subjective inner objects produced but in what the external stimulating objects or events seemed to be, what they were perceived **as** (which was not always the same as what they actually were). Instead of using experienced "observers" trained, or at least skilled, in the 'correct' method of introspection, the Gestalt school sought, as far as possible, entirely "naïve" reports of what their subjects were perceiving {54}. Such concern as they had with **inner** events revolved not around **mental** objects such