

**II.D.****Imagination as Perceptual Activity.****SII.D.1. Precursors: The Motor Theory of the Mind and Imagery as Pretence.**

In this chapter I want to explore what Morris & Hampson {1} call, somewhat inappositely I think, "Rôle Playing Models" of imagery. This chapter will have a somewhat different form to the previous two, partly because I want to defend and develop this sort of theory more than criticize it, and partly because theories of this type have not been attacked, defended, or, as a consequence, developed to anything like the degree that quasi-pictorial and descriptive theories have. Despite the fact that theories, or sketches of theories, of this general type have been proposed by several contemporary workers, including a couple of quite 'big names' (notably Donald Hebb {2} and Ulric Neisser {3}), theories of this type have inspired much less discussion than have the other two types of extant theory; those which we covered in the last two chapters. In part this can probably be attributed to the energy and combativeness of Kosslyn and Pylyshyn, who have perhaps raised so much dust in their attacks on each other's positions as to obscure people's view of other possible contenders. But a more basic factor here is probably that both Kosslyn's quasi-pictorialism and Pylyshyn's descriptionism fall within the general 'information processing' approach to psychology. This draws

strong analogies between the human cognitive system and the sequential processing of the standard 'von Neuman' computer, and it has been the dominant 'paradigm' in cognitive psychology for the past fifteen years or more. Advocates of 'perceptual activity' theories have generally been opposed to this approach {4\*}, and thus swimming against the current.

There are very recent signs that even amongst A.I. enthusiasts a turning away from sequential information processing models is beginning. This is largely inspired by nascent developments in computer technology towards 'parallel processing' machines. The psychological ideas which these developments have fueled - the theorists refer to them as "connectionism" {5} or "parallel distributed processing" {6} - bear more than a passing or accidental resemblance to the neurophysiological speculations being made by Hebb {7} nearly forty years ago {8\*}, and which underpin his 'perceptual activity' theory of the image {9}. There is thus at least some reason to hope that the day of the 'perceptual activity' theory of imagery may be approaching at last. As things stand, however, none of the extant versions of such theories can be accounted as very satisfactory, and there has been very little convergence or interaction between the various versions. I shall thus, in this chapter, be trying to draw out the common threads of these various versions (which might otherwise appear quite disparate) and to develop them somewhat further into what I hope will be a more coherent, or at least a more concrete,

theory, whose advantages I shall try to display.

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Like the 'descriptive' theory of imagery (and unlike pictorial theories) the historical roots of the 'perceptual activity' approach are fairly shallow. Nevertheless, one may find some faint echoes of it in the ideas which Idealist and Romantic thinkers such as Schelling and Coleridge held about the imagination in the late 18th and early 19th centuries {10}. Certainly they stressed the active nature of perception - for they saw it as actually **creating** the experiential world - and they saw imagination as an aspect of this creative power, or perhaps even as identical with it {11}. The claims made are, however, so obscure and inflated as to be of little relevance to scientists.

More directly relevant to the modern theories (though by no means the same) are the so called "motor" theories of the mind, which seem to have enjoyed a certain currency amongst psychologists in the late 19th and early 20th centuries. These theories associated imagery (and thus thinking in general) with the efferent rather than the afferent side of the nervous system. Imagery is produced not by reinstatements of sensory events but by inhibited reinstatements of muscular reactions to the original stimuli. One theory of this type was that propounded by Knight Dunlap {12}, and which we have already looked at in §I.B.3. Although Dunlap's was not the only, nor the most fully developed, theory of this type, our early discussion

may perhaps excuse us from going into further detailed exposition here. The fullest flowering of the motor theory of the image probably came with the publication of Margaret Washburn's *Movement and Mental Imagery* in 1916, but it was a little late to be publishing theories of the image by then {13\*}. Nevertheless, Boodin {14} could still get a hearing for views of a similar sort in the *Psychological Review* of 1921 (when Watson was still an editor). Indeed, motor theories of the mind seem to have retained a certain degree of currency even amongst contemporary American psychologists {15}.

Washburn and Dunlap seem to have derived their 'motoric' ideas from Hugo Münsterberg, a German who had come to work at Harvard. Dunlap studied under him before going to Johns Hopkins {16} and Washburn notes how she studied his writings with great interest, and was particularly attracted to his 'motoric' ideas {17}. Motor theories of imagery seem to have been about in Europe somewhat earlier, in the late 19th century. A rather sketchy exposition of an imagery theory which is at least partly motoric was given by the French psychologist Th. Ribot sometime before 1890 {18\*}, and he refers us somewhat offhandedly to the writings of Bain, Taine, Galton, Charcot, Binet and Ballet, and to unspecified "innumerable experiments" to back up his position {19\*}. Also, according to Woodworth {20} the German Stricker was arguing that all imagery is essentially kinaesthetic in the early 1880s, and perhaps this can also be seen as a precursor of the motor

theories, and, remotely, of modern 'perceptual activity' theories.

Although 'motor' theories of imagery, like Dunlap's, bear a certain resemblance to the 'perceptual activity' theories which we shall be discussing below, there are also considerable differences between them. I should not like the reader to get the idea that I, or the thinkers to be discussed, believe that imagery in the visual and all other modes is really a mistaken interpretation of kinaesthetic sensations in the muscles (as Dunlap held). In fact, I am sympathetic to Gibson's {21} view that sensations are of little relevance to perception, and, thereby, I would argue that they are also of little relevance to imagery. I am not suggesting, either, that the old 'motor' theories of imagery are in any direct way the ancestors of current 'perceptual activity' theories. In fact the historical roots of the various current theories seem to be rather diverse. Nevertheless, there may be links to be found, possibly in the 'act psychology' which grew out of the work of Brentano, and the Phenomenology of his pupil Husserl. An English philosopher who is known to have been interested in these schools in his youth, though he later repudiated them, is Gilbert Ryle {22}.

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By far the best known philosophical discussion of mental imagery and imagination in English in this century must be the eighth chapter of Ryle's *The Concept of Mind*

{23}. We have already, at several points, had occasion to refer to this. However, up to now we have been concerned only with its negative arguments, arguments against pictorial accounts of imagery. Now the time has come for us to look at Ryle's positive suggestions as to the nature of imaging. After he has, to his own satisfaction, demolished the picture theory, and after pointing out the diverse variety of activities which may be properly called "imaginative", Ryle launches into a detailed discussion of one of these, the concept of pretending {24}. Examples used include a child playing at being a bear, an actor in a play, boxers sparring, and someone entertaining beliefs which he does not currently hold. Ryle seems to believe that it is such pretending or "make-believe" which is fundamental to our concept of imagination {25\*}, so that:

what we call 'imagining', 'visualizing',  
'seeing in the mind's eye', and 'going  
through [e.g. a tune] in one's head' {26}

are all really a "special brand of make-believe" {27}. Visualizing, for Ryle, is thus not seeing an internal picture of something, it is pretending (to ourselves) to see it.

But in what does such a pretence consist? Ryle first considers a case of auditory imagination, the experience of having a tune running in one's head. As he points out, this is only possible if we know the tune (and similarly, we can only visualize something if we know what it looks like) {28\*}. Imagining the tune, then, is not so much like hearing it for the first time as like following a

tune which is already familiar, and

following a known tune involves not only hearing the notes, but also much more than that. It involves, so to speak, having the proper niche ready for each note as it comes. Each note comes as and when it was expected to come; what is heard is what was listened for. {29}.

**Humming** a tune also involves knowing it and being ready for each note as it comes. Thus there are two ways in which we can imagine or "fancy" a tune:

Fancying one is listening to a known tune involves 'listening for' the notes which would be due to be heard, were the tune being really performed. It is to listen for those notes in a hypothetical manner. Similarly, fancying one is humming a known tune involves 'making ready' for the notes which would be due to be hummed, were the tune actually being hummed. It is to make ready for those notes in a hypothetical manner. It is not humming very, very quietly, but rather it is deliberately not doing those pieces of humming which would be due, if one were not trying to keep the peace. {30}.

Imagining a tune, then, is like pretending to follow it or pretending to hum it. We ready our expectations of each note that is to come, but we are prepared to discount the fact that these expectations are not fulfilled, that we hear or produce no notes, and to carry on regardless. Extending such an account to visual imagination, says Ryle,

is not difficult. Seeing Helvellyn in one's mind's eye does not entail what seeing Helvellyn and seeing snapshots of Helvellyn entail, the having of visual sensations. (...) It is one utilization among others of the knowledge of how Helvellyn should look, or, in one sense of the verb, it is thinking how it should look. The expectations which are fulfilled in the recognition at sight of Helvellyn are not indeed fulfilled in picturing it, but the picturing of it is something like a rehearsal of getting them fulfilled. So far from picturing involving the having of

faint sensations, or wraiths of sensations, it involves missing just what one would be due to get, if one were seeing the mountain. {31}.

Now it has to be admitted that despite the fame of Ryle's discussion of the imagination, very few, even amongst philosophers generally sympathetic to his approach, seem to have found his positive account of imaging very convincing {32\*}. Worse still, Ryle himself does not seem to have been one of those few! Hannay {33} claims to have had "verbal assurance" from Ryle that he preferred Shorter's {34} account of imagination to his own. If this is so then I must regard it as an unfortunate lapse on Ryle's part, for, although they are not without their problems, in my view Ryle's suggestions are considerably more helpful than Shorter's {35}. But perhaps Ryle's "verbal assurance" need not be given too much weight; as Hannay points out {36}, Shorter's proposals about imagining will lead to conflict with other more central aspects of Ryle's programme.

However, we do have some more solid evidence of Ryle's second thoughts about imagination. In a paper first published in French in 1962 {37\*} Ryle admits that he "got lost" when he tried to give his positive account of imagining:

when I found myself classifying visualizing as 'make-believe seeing' I felt conceptual embarrassments, and these are always a sure sign that something has gone wrong {38}.

But Ryle is by no means intent on throwing out the whole of his earlier account. In fact he remains convinced that he was "on the right track" in his crucial move of

"assimilating imaging, e.g. visualizing, to the much more general notion of make-believe" {39}. What he thinks is missing from his earlier discussion is some way to account of the "quasi-sensuousness", "the vividness or lifelikeness" of imagining, of what differentiates it from merely thinking about something {40}. Ryle confesses that he remains "stumped" as to how to give such an account, but I believe that, as he himself suspected {41}, the problem lies not so much with his original analysis of imagining but with the sensationist analysis of perception in the preceding chapter of *The Concept of Mind* (an analysis with which he expressed dissatisfaction even at the original time of writing {42}).

What is worrying, surely, about the suggestion that imaging is make-believe seeing, or pretending to see, is that seeing does not seem to be the sort of thing to which one can pretend in the relevant sense. As Ryle would say, it is a verb of achievement rather than a verb of performance {43}, and although we can pretend to do certain performances (by making the appropriate bodily motions) we cannot pretend to achievements except in the irrelevant sense of lying about them. Ryle realizes that visualizing something is quite different from asserting falsely that one sees it {44\*}, but, on his account of seeing, it is not at all clear what other construction could be placed on "make-believe" seeing. This is surely the source of his "conceptual embarrassments".

The solution, as Ishiguro {45} has seen, is to allow that seeing can be an action, a performance. Seeing and looking, we might say, are more closely bound up with one another than we commonly realise. There is no seeing without looking. That seeing is an activity is, in fact, pretty much the standard view in contemporary psychology of perception. Perceptual psychologists as far apart in their views as Richard Gregory and James Gibson both, in their different ways, stress the active nature of perception in general and vision in particular {46} (although they would strongly disagree over which of their conceptions of perceptual action is the right one {47\*}). What is more, linguistic study seems to indicate that verbs like "look" and "see" are both closely related to verbs of motion such as "go" or "fly" which, when humans are their subjects, are generally actions, performances. According to Gruber, the prepositions which follow intransitive uses of both "see" and "look" are subsets of those used with other, more obvious, verbs of motion {48}. "See" generally either incorporates a tacit "to" or is followed by "to" or a related preposition {49}. "Look" is similarly related to prepositions like "toward" {50}. However, unlike looking, which is indisputably an action and can certainly be pretended to (one could peer about, but with no intention or expectation of finding the supposed object of thought), the action of seeing would seem to have to be an essentially internal, mental affair {51\*}. Ryle would, of course, be most unhappy with this solution; a major theme of *The Concept of Mind* is the denial of such mental actions

and "para-mechanical" psychological hypotheses. Ryle {52\*} seems to fear that to begin to give way to any such hypotheses is to step right onto the slippery slope to Cartesian dualism. However, in large part thanks to Ryle, dualism is no longer the "official" theory of mind, and avoiding it no longer calls for quite such exaggerated caution. Ishiguro {53} argues that mental acts can (and must) be allowed into our theory of the mind without losing the ground which Ryle has gained for us. She is thereby able to redeem his theory of the imagination.

### **§II.D.2. Images and Eye Movements.**

There is one respect in which seeing certainly seems to involve action. This is the matter of eye movements. Our eyes are continually in motion. They not only 'track' moving objects, but jump rapidly from place to place in so called 'saccades', which usually occur several times per second {1}. Even when we seem to be staring fixedly at some particular point, experiments show that the eyes still move slightly in at least three different ways: there are slow 'drifts' of the point of fixation; rapid 'microsaccades'; and a continual very fast and low amplitude 'tremor' which is superimposed on all the other eye movements {2}. The amplitude of the microsaccades varies from about 2 to about 50 minutes of angle, whereas the amplitude of tremor is only about 20-40 seconds of