

absurdity of it {27}.

There is, it must be admitted, a particular problem facing iconophobes<sup>M</sup>. If, like Ryle {28}, they reject the everyday "image" terminology as "misleading", and try to avoid it, they run a grave risk of being mistaken for iconophobes<sup>E</sup> (and thus <sup>F</sup> also) - non-imagers misled by simple ignorance of other people's interior life. Ryle has certainly suffered this fate, for instance at the hands of Danto {29} and Lawrie {30}, and it has sometimes led, I think, to some of his arguments not being given the weight they deserve. In fact Ryle seems to have been a moderate iconophile<sup>F</sup> {31}. Allan Paivio, by contrast, retains the "image" terminology in expounding his own strong iconophilia<sup>F</sup> {32}, and gets taken even by his departmental colleague Pylyshyn (iconophobe<sup>F</sup> and <sup>M</sup>) to be an iconophile<sup>M</sup> also {33} - which he seems not to be {34}. My own position owes much to both Ryle and Paivio. In general I shall take the easier path and follow Paivio in using the ordinary "image" terminology - my iconophobia<sup>M</sup> should become apparent enough.

### §I.B.3. J.B. Watson's Iconophobia.

The iconophobia (F tending strongly to E) which, as we noted above, reigned amongst psychologists for over forty years of this century can, I believe, be shown to be

in part the historical result of confusions of the type we have just been discussing. The psychological 'paradigm' which particularly sustained American iconophobia was, of course, Behaviorism in its various forms, and the standard-bearer of Behaviorism, J.B. Watson, spoke out strongly and repeatedly against all forms of mental content, all "mediaeval conceptions" such as:

sensation, perception, image, desire, purpose, and even thinking and emotion as they were subjectively defined. {1}.

"The most serious obstacle" to the establishment of a thoroughgoing Behaviorism, of a 'truly scientific' psychology, was, said Watson, the doctrine of "the 'centrally aroused sensation' or 'image'" {2}. Instead of invoking images (or *Bewusstseinslagen*) the Behaviorist hoped to account for thinking entirely in terms of "implicit behavior", externally imperceptible muscular movements, especially sub-vocal speech movements {3}. The persistent belief in images, and that thinking is carried out in the brain rather than in the muscles, is castigated by Watson as an unscientific hangover from religious belief {4}. (Watson had reacted strongly against a strict religious upbringing {5}.) Of course, Watson did not impose his own personal iconophobic feelings, nor even the Behaviorist methodology, on the rest of the psychological community. Larger forces were at work. However, Watson is a pivotal figure, and the development of his own opinions about imagery probably provides the most relevant case study to illuminate what happened in psychology as a whole.

Watson's iconophobia was not a thing of half measures. He first put his Behaviorism and his rejection of introspectionist psychology into print in his paper of 1913, "Psychology as the Behaviorist Views It" (derived from a lecture given at the end of the previous year - the lecture series which this began apparently caused a considerable stir {6}) {7}, and in a lengthy footnote appended to this "Behaviorist manifesto" Watson asserts that:

There is need of questioning more and more the existence of what psychology calls imagery. (...) I should throw out imagery altogether and attempt to show that practically all natural thought goes on in terms of sensori-motor processes in the larynx (but not in terms of 'imageless thought') which rarely come to consciousness in any person who has not groped for imagery in the psychological laboratory. This easily explains why so many of the well-educated laity know nothing of imagery. {8}.

Watson clearly did not believe in imagery at this time (nor did he later). In a follow up paper of the same year Watson does qualify the bald assertion that "there are no centrally initiated processes" {9} with a grudging footnote:

I may have to grant a few sporadic cases of imagery to him who will not be otherwise convinced, but I insist that the images of such a one are sporadic, and as unnecessary to his well-being and well-thinking as a few hairs more or less on his head. {10}.

However, this is surely meant as a sop to human obstinacy and prejudice, not to psychical reality. Even this small concession is omitted from the 1914 version of the same material {11}. Watson was looking forward to establishing a psychology which would

never use the terms consciousness, mental states, mind, content, introspectively verifiable, imagery, and the like. {12},

and he attempted to carry through this programme with some considerable consistency. By 1919 he was even attempting to explain common hallucinations, such as the 'snakes' frequently 'seen' by sufferers from *delirium tremens*, in terms of inappropriate reactions to "sinuous shadows on the wall", "entopic" phenomena in the eye, or other such external or peripheral stimuli {13}.

Watson looks from all this to have been about as clear an example of the iconophobe as you are likely to find committing himself to print. He has revealed, furthermore, that even as a graduate student he "hated to serve as a subject", as the 'observer' in introspective experiments:

I didn't like the stuffy, artificial instructions given to subjects. I was always uncomfortable and acted unnaturally.  
{14}.

It was this discomfort with introspection, he says, which led him first to animal work, and thence to his initial behavioristic ideas {15}. It would be very tempting to conclude that Watson was simply one of that 10-12% of non or very poor imagers - one who erected this personal quirk into an entire psychological system. It would remain a mystery, however, as to why a system with such a basis should have so quickly and so successfully taken over American psychology (particularly as Watson himself had been drummed out of the profession, for sexual indiscretions, by the end of 1920 {16}). Also it seems very

strange that a natural iconophobe should ever have been moved to enter what was, at the time, a systematically iconophilic profession. But consider the following gnomic remarks, also from the long note to "Psychology as the Behaviorist Views It":

Until a few years ago I had thought that centrally aroused visual sensations [i.e. images] were as clear as those peripherally aroused. I had never accredited myself with any other kind. However, closer examination leads me to deny in my own case the presence of imagery in the Galtonian sense {17\*}. The whole doctrine of the centrally aroused image is, I believe, at present on a very insecure foundation. {18}.

Note also that for his first two years as professor at Johns Hopkins (from autumn 1908) Watson taught experimental psychology from the manuals of the arch-iconophile Titchener {19}, and he acknowledged a great intellectual debt to Titchener at that time {20\*}. Moreover, Knight Dunlap, his junior colleague at Johns Hopkins, testifies that Watson still accepted "the old doctrine of 'images'" in his early days there. When Dunlap expressed scepticism about images Watson was insistent that he himself

used visual imagery very effectually in designing his apparatus. Watson had not at that time developed his behaviorism, and his thinking was, to a large extent, along conventional lines. {21}.

It rather looks as if Watson originally thought that he had quite good mental images - even "as clear as those peripherally aroused" {22}. It was only as his theoretical views developed that he decided that he (and everybody else) had none at all.

Of course, Watson did not bring about the

Behaviorist revolution single handedly in 1913. Hebb (23) dates the 'revolutionary' period as lasting from 1898 to 1938, and he names nine other significant American revolutionaries, as well as several important foreign 'fellow travellers' (and doubtless both the period and the cast could well be further enlarged). Although positivistic ideas about scientific methodology were in the air at the time, and no doubt played their part (24), there were also more specific forces favouring the move towards Behaviorism. The "imageless thought" controversy and similar disagreements seem to have thrown the whole introspective psychological method, and its search for images, into question. Watson, in his 1913 'manifesto', was able to play very effectively on how such disagreements could degenerate into quite irresolvable wrangles about the introspective competence of different 'observers' (25). According to A.O. Lovejoy (26\*), writing in 1914, it had, over the previous ten years (27\*), "become the fashion with not a few philosophers" to question the conception of "consciousness" that figured so largely in the introspective psychology. Furthermore:

The fate of 'consciousness' has been shared by several other ancient notions which once made up its retinue. The existence of sensations, of images, of ideas, of mental states, of 'subjective appearances', and the possibility of 'introspection', have all been denied by recent philosophical and psychological iconoclasts. (28).

Lovejoy was concerned to resist this 'iconoclasm'; Watson embraced it, and, by cutting it free from the philosophical subtleties with which he had long since grown impatient (29\*), probably did more to ensure its triumph than anybody

else.

Watson had been toying since 1903 or 1904 with the idea of applying to humans the sorts of methods, the observation of behaviour, which he had applied so successfully to the study of learning in rats {30}, and subsequently to the study of other animals {31}. However, there seems to be no good reason to think that he was part of the 'iconoclastic' movement when he arrived at Hopkins in 1908. Rather, as we have seen, the reverse seems to have been the case. Dunlap, however, who was already established at Hopkins when Watson arrived, claims to have been an open 'iconoclast', criticising "the conventional doctrine of 'mental images'" in private, since about 1907 {32}. In 1912, the year before Watson 'came out' as a Behaviorist, Dunlap had published a paper criticising the then current conceptions of introspection {33}, and a textbook {34} in which he expressed some of his 'iconoclastic' views on imagery, albeit in an appropriately toned down form (he did not express himself freely on the subject in print until 1914). Though he never embraced Behaviorism {35} Dunlap was nevertheless sympathetic to Watson's early tentative ideas about applying the methods of the "behavior men", the animal psychologists, to humans, and he seems to have been the first person to really give Watson any encouragement on this {36}. His views on imagery seem to have been crucial. By 1910, and perhaps before, the only real factor preventing Watson from conceiving of the study of behaviour as embracing the whole of psychology seems to have been

"the problem of the higher thought processes" (37). Thought was supposed to be carried on primarily in imagery, and imagery was not behaviour (38). It seems to have been Dunlap's 'iconoclastic' notions which eventually led Watson to the view that images could simply be dropped altogether, and replaced by "implicit" muscular responses (39). Even Watson's biographer Cohen, generally and properly concerned to defend Watson's originality, stresses Dunlap's influence in regard of the imagery question (40). Dunlap's own account, which Watson acknowledges as "true" (41), is as follows:

I had already discarded the old doctrine of "images." Watson, however, still accepted it. He, he said, used visual imagery very effectually in designing his apparatus. Watson had not at that time developed his behaviorism and his thinking was, to a large extent, along conventional lines. He was violently interested in animal behavior, and was looking for some simplifications of attitude which would align that work with human psychology. Hence, he was interested in the iconoclastic activity I was developing, and was influenced by my views, but carried them out to extremes. I rejected images as psychic objects, and denounced introspection as held by the orthodox psychologists. Watson carried this further, to the excluding from his psychology of everything to which the word "introspection" could be applied, and excluded imagination along with images. (42).

What does Dunlap mean here by implying that he would not have had Watson drop "imagination" but only "images"? I believe that this indicates that Dunlap's 'iconoclasm' amounted only to what we have called iconophobia, whereas Watson, failing to make the distinction (and, to be fair, Dunlap does not seem to have

an entirely steady grasp of it either), carried this through into iconophobias<sup>F</sup> and E as well. Dunlap certainly stoutly denied the existence of mental images in the sense of mental pictures, faint reinstatements of former visual impressions (or, indeed, impressions of other sense modes):

I contend that the image, as a copy or reproduction of sensation of variable mode does not exist. {43}.

He offered both theoretical argument and 'introspective' evidence in support of this {44}. However, he still held that something, something mental, was needed to fill the functional rôle which images played in the conventional psychology of thinking - something to form the carriages in the 'train of association' - and he provided not only an account of what these mental contents were, but also of why people so widely took them to be reproductions of former sensation, images in the 'pictorial' sense. He suggests that:

There is indeed a present content essentially connected with imagination or thought; but this present content is in each case a muscle sensation, or a complex of muscle sensations. We are therefore, in investigating images, dealing not with copies, or pale ghosts, of former sensations but with actual present sensations. {45}.

These muscle sensations were not at all to be confused with the impalpable "imageless thoughts" {46}, rather:

This sensation is the true image. {47}.

The muscle sensations are supposed to be caused by small, outwardly imperceptible, muscular reflex responses to particular stimuli, and Dunlap provides an account of how regular successions of stimuli can cause the relevant

muscular responses to become entrained so that perception of one stimulus can make us 'imagine', by producing the relevant muscular responses, those which go with it:

In concrete illustrative terms: the visual presentation of an apple no longer arouses visual perception merely, but arouses also the perception of the gustatory, olfactory, tactual, and possibly thermal qualities of the apple. {48}.

Dunlap claims that his own introspections reveal only muscle sensations in such cases, and not the 'absent' perceptual qualities {49}. However, these muscular response pattern 'images' serve us as "ideas", as representations of the stimulus objects which in the first place produce them (just as perceptual images do in more traditional forms of associationism). In thinking they can therefore represent some absent object of thought. Dunlap is thus able to explain away the fact that most people believe that they experience 'mental images' as reinstatements of former perceptions (rather than of former responses):

this form of present content (muscular activity) is that which is actually observed by those who report 'mental images'. These observers correctly notice that there is a present content in addition to the 'absent' or ultimate object of thought, but they mistakenly confuse the quality of the ultimate object with the quality of the present content. {50}.

Furthermore:

The muscles of the organs of the special senses are in many cases concerned in "imagery", and there is a strong tendency in these cases to refer the image to the mode of the special sense concerned. If the muscles of the eye are involved in the production of an image, there is a tendency to classify the "image" as visual, and so on. {51\*}.

The real trouble, however, is that other introspectors hold

the wrong theory!:

It is of course extremely difficult to separate completely in introspection the direct content from the idea. The difficulty is especially great if we do not understand what the direct content really is. Hence we need not be puzzled by the fact that the direct content has been described in conventional psychology as possessing the modality, and possibly other characteristics, of the idea. {52}.

It seems that our introspections can only be relied upon to reveal the true nature of the image, or other thought content, to us if we already have a 'correct' understanding of this. Here, as in the "imageless thought" debate, we see again that futility of introspectionist argument which led Watson to rail so successfully against the whole approach.

It is true that, although he lays much less stress on laryngeal, language responses, Dunlap's theory of 'image' association bears a considerable resemblance to Watson's theory of thought {53}. Under both theories thinking could be described as a matter of a succession of implicit muscular responses serially conditioned to one another. However, Watson's Behaviorism disavowed all interest in conscious contents, utterly rejected introspection, and seemingly denied the existence of imagery altogether. Dunlap, it seems to me, was rather trying to explain these things in a new (if perhaps ultimately unconvincing) way. However, he seems to have an imperfect grasp of the distinction between iconophobia<sup>M</sup> and iconophobias<sup>F</sup> and E, and so occasionally talks as if he is denying the reality of imagery altogether. Watson, it seems to me, probably took him to be doing just that. We may

perhaps take Watson as not only the leader but also the exemplar of the switch to Behaviorism in American psychology. "Iconoclastic" objections, such as Dunlap's, to 'pictorial' accounts of imagery (and to other notions from the "retinue" of "consciousness") were, I suspect, widely seen to be generally cogent. However, the alternative accounts on offer for these notions, even if clearly distinguished from outright rejections of them, probably seemed far less persuasive. After all, like all theories they would inevitably have their defects and limitations. It should be no surprise that the hope of cutting through these difficulties once and for all, by entirely excluding the 'inner' from psychology, came to hold great attractions. In the case of imagery the difficulties would have been compounded (as they are today) by the general failure to recognise the distinction between the various forms of iconophobia. Arguments against 'pictorial' mechanisms could easily be misunderstood as powerful, if somewhat elusive, arguments against the reality of the experience itself. (Even if this conclusion seemed absurd that might only make the 'image' concept seem even more confusing.) Anyway, the received wisdom amongst psychologists became that 'mental imagery', especially, was a bad concept, and best avoided.