

behaviourist psychologists described us—as lacking qualia of red or pain, or the sound of violins. Why audiences without music qualia would sit through a symphony was hardly questioned. Psychology has now abandoned the behaviourism of J. B. Watson and B. F. Skinner, who tried to make psychology seem more scientific and less whimsical by denying consciousness, though at the cost of throwing out the baby with the bathwater. The situation is indeed reversed, as physicists, especially Roger Penrose, are now asking how the physical world can have consciousness.

Why should consciousness have evolved if it is useless? Yet, if qualia affect the nervous system, how can chemistry and physiology give adequate explanations of how the brain works, to give learning, perception, and behaviour?

We might hazard a guess at what qualia do. As perception depends on rich knowledge from the past, stored in the brain, there must surely be a problem identifying the present moment from past memories. And also from anticipations running into the future. As human perceptions are very largely stored knowledge, the *present moment* needs to be identified, for our behaviour to be appropriate to what is happening now. It is vitally important to recognize the present as special—as the only time that actions can occur. Crossing the road, it is essential to know that the green light is *now*, not in some remembered or anticipated time.

There is no such problem for primitive reflex actions. The present is signalled purely and simply by the onset of stimuli; but with rich memory and imagination, there must be a problem identifying neural activity of present stimuli, from memory and anticipation of other times. Our present, though signalled by stimuli, seems to be marked or ‘flagged’ by qualia.

Try this simple experiment. Look at the scene around you. Then close your eyes, and imagine it. What happens? Surely the vividness of the scene is lost. Memory and imagination are dim by comparison with the present. To reverse the experiment: imagine the scene, or a particular object known to be out there, then open the eyes and look at it. The qualia of the present visual world are suddenly startlingly vivid. So, perhaps an important role for qualia is to *flag the present*, so we are not confused with remembered past or anticipated future.

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1. Flagging the present
2. Exceptional cases

### 1. Flagging the present

One can imagine a bunch of interacting robots getting on fine without any awareness, or \*qualia, but surely they would not spend hours looking at pictures or listening to Beethoven. This is just how, only a few decades ago,

### 2. Exceptional cases

This is not infallible. At least one person with exceptionally vivid memories has been described who confused memories with present reality. This is the remarkable case of Mr S, described by the Russian neuropsychologist Alexander \*Luria. Mr S was a professional memory man, with incredibly vast memory and extremely vivid imagination. But he confused his vivid memories with real-time reality, to the point of danger. He would confuse

imagined with real traffic lights. And, as he said, 'I'd look at a clock and for a long while continue to see the hands fixed just as they were, and not realize time had passed . . . That's why I'm often late.'

Another exception is dreams. In dreams vivid qualia unrelated to present sensory signals may be experienced. But in sleep, in a safe place, the present moment has no special significance, as the muscles are inhibited and behaviour is essentially absent.

When sensory inputs are cut off for a long period, perception may become abnormal as in \*isolation experiments. In \*schizophrenia, and hallucinogenic drug-induced states, vivid qualia are also experienced with no sensory input. We may assume the normal qualia-flagging-the-present system is malfunctioning with sleep, and in schizophrenia and hallucinogens. Then the hypothesis is 'saved', and perhaps we have learned more about these states.

It is reported that in drug-induced states, time may seem to slow or stop. In *Doors of Perception* (1954), Aldous Huxley describes changes of consciousness experienced with mescaline. He ceased to be interested in action, becoming a passive observer—'the will suffers a profound change for the worse'—though his ability to think is little if at all reduced. So he becomes almost a 'not-self'. Most suggestive: 'Visual impressions are greatly intensified', while 'interest in space is diminished and interest in time falls almost to zero'. Huxley emphasizes that colours are immeasurably enhanced in vividness, ordinary objects appearing self-luminous, with the inner fire of jewels, while time essentially stops—becoming 'an indefinite duration alternatively a perpetual present'. With mescaline and other hallucinogenic drugs sensations become enhanced, as super qualia, and the present is emphasized with correspondingly little flow of time.

Although memories usually lack visual or other qualia, sensations are surprisingly vivid in remembered *emotions*, as when an embarrassing situation is recalled years later. With the Danish physician Carl Lange, William James suggested that emotions have a basis in autonomic changes of the body. The \*James–Lange theory of the emotions is that the body responds, for example to danger, by unconsciously preparing for action, and these autonomic physiological changes are then sensed as emotions of fear or rage or whatever.

For the emotion of shame, there is autonomic change with visible blushing. Darwin suggested that \*blushing is a social signal warning others that this person is not to be trusted. We may blush at the memory of a shame-making deed, experiencing qualia of shame years after the event—presumably when afferent inputs from autonomic bodily changes are evoked by memories. These autonomic changes are in the *present*, so this is not really an exceptional case.

This idea of flagging the present by qualia has implications for consciousness in other animals. As perception evolved, to become more intelligent, it drew away from direct control by stimuli. But as intelligence cannot be tied to the sensed present they can be dangerous. Imagination and intelligence push the mind away from present reality, but nudges of qualia seem to bring us to our senses, to handle the present situation in real time.

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