

52. 1980.

53. 1978a - especially chapter 1.

54. At least, Searle seems to believe that a computer could be programmed to converse sensibly (i.e. pass the Turing test) in Chinese, which surely goes a long way towards this end. But possibly he only concedes this for the sake of argument.

55. Stich, 1983. This is not actually the form of Stich's argument, but I think it captures his intentions.

56. 1980.

57. I do not think that all aspects of Searle's position are very reasonable. In particular, his view that the intentionality of our mental states depends necessarily on the biochemistry of the brain [Searle, 1980 p.424] seems quite absurd to me. I have no objection in principle to the notion that there might be a robot like Pylyshyn's with a brain which is a digital computer, made of silicon or whatever you like. I just don't think that this computer's states should be identified with the robot's mental states (see below).

58. 1985.

59. I do not think there is much doubt that a digital computer could, in principle at least, simulate the workings of a human brain. However, this does not mean that a computer (as opposed to a robot) could think, or, indeed, mentally represent, in the same sense that a person does. This is because brains do not think. People or animals, whole organisms with all their multifarious perceptual and effector organs, are what think. Thinking, I believe, is a part of that interaction with our environment which constitutes our lives, and it does not go on in isolation from this. Of course I do not deny that the brain is the organ which plays the most active, central and vital rôle in thinking, but then the legs play the most active, central and vital rôle in walking, yet we do not imagine that they could go strolling off on their own. Much of the rest of the body (including the brain) is needed. Why should the brain have an independence which the other organs lack?

Notes to §II.D.1.

1. 1983 p.132.

2. 1968.

3. 1976.

4. Neisser, in his influential **Cognitive Psychology** [1967], did much to encourage the trend towards the computational analogy. However, he has long had strong reservations about the relevance of A.I. to psychology [Neisser, 1963, 1976b], and he has moved against the tide he helped to unleash ever since. His **Memory Observed** [Neisser, 1982] must be about as far away from information processing theory as cognitive psychology can get.

5. See, e.g., Fahlman & Hinton, 1987.

6. See, e.g., Rumelhart, McClelland et al., 1986.

7. Hebb, 1949.

8. Hebb is acknowledged as a precursor of the "parallel distributed processing" approach by McClelland, Rumelhart & Hinton [1986 p.41].

9. Hebb, 1968.

10. See Engell, 1981; Coleridge, 1817.

11. Coleridge, 1817 p.167.

12. Dunlap, 1914.

13. Washburn's autobiographical remarks [Washburn, 1932 pp.349] clearly show her disappointment over the lack of attention paid to this work when it was published. A notable exception to this indifference was T.H. Pear, in Britain (see §I.C.1 above).

14. 1921.

15. E.g. Weimer, 1977.

16. Dunlap, 1932 pp.40-42.

17. Washburn, 1932 p.343.

18. Ribot, 1890 pp.47ff. - I have used the 1903 edition (5th) of the English translation of 1890. Presumably the French original was somewhat earlier.

19. Ribot, 1890 pp.48-9. He does specify one experiment: "Chevreul's famous experiment with the pendulum", but he does not describe it, and I have no idea what it was. Incidentally, I know of nothing in Galton's remarks on imagery which would support Ribot's views.

20. 1938 p.40.

21. 1966, 1979.

22. Passmore, 1966 p.442.

23. Ryle, 1949.

24. Ryle, 1949 chap.8 §5.

25. Although I have no direct evidence for this, I should like to speculate that Ryle may have been led to laying his strong but unexplained stress on the connection between imaging and pretending by his memory of a passage in Aristotle's *Poetics*, which gives advice to the would be epic or dramatic poet:

At the time when he is constructing his plots, and engaged on the diction in which they are worked out, the poet should remember (1) to put the actual scenes as far as possible before his eyes. In this way, seeing everything with the vividness of an eye-witness as it were, he will devise what is appropriate and be least likely to overlook incongruities (...). (2) As far as may be, too, the poet should even act his story with the very gestures of his personages. Given the same natural qualifications, he who feels the emotions to be described will be the most convincing; distress and anger, for instance, are portrayed most truthfully by one who is feeling them at the moment. Hence it is that poetry demands a man with a special gift for it, or else one with a touch of madness in him; the former can easily assume the required mood, and the latter may actually be beside himself with emotion.

[Aristotle, *Poetics* 1455a. Trans. Bywater, 1909].

Aristotle does not use the words *phantasia* or *phantasma* in this passage (nor, I believe, elsewhere in the *Poetics*) but he certainly seems to be talking about mental imagery and associating it very closely with make-believe or rôle playing, as Ryle does. This association may be even clearer in the original Greek, for according to Else [1957 p.496], the Greek syntax makes it clear that the "hence" at the beginning of the final sentence refers to both the need for imaging the scene and that for acting out and feeling the emotions. We may be confident that an Oxford philosophy professor such as Ryle would have been thoroughly familiar with this passage, and probably in the Greek. Indeed, Passmore remarks of Ryle that: "Aristotle is always his natural point of departure" [Passmore, 1966 p.442]. If this is so it is seldom made explicit, but it may well be that Ryle was so steeped in Aristotle's thought that this passage influenced his thinking about the imagination without his even being aware of it.

The passage is in any case particularly interesting because of its recognition of the connection between imagination (both as image forming and rôle playing capacity) and artistic talent. It is also probably the source of the persistent notion that creative genius and

madness are closely allied. According to Else, Aristotle believed that genius, madness, 'enthusiasm', and the having of prophetic dreams all arise from an excess of the melancholic humour ('black bile'), and that "the common symptom of these widely differing states is the unusual liveliness and strength of the mental images (phantasmata)" [Else, 1957 p.499]. Further comment on the implicit rôle which Aristotle gave to phantasia in the arts can be found in Butcher [1902 pp.124-7].

26. Ryle, 1949 p.250.

27. Ryle, 1949 p.250.

28. Ryle, 1949 p.251. Of course, we might be mistaken in our memory of a tune, so that the one running in our head is not identical to the one we previously heard and believe ourselves to be imagining. But even in this case we know a tune, one which we have partially and unwittingly made up, and we could not imagine it unless we thus knew it. A similar argument could be made for mistaken visual imaging, and, indeed, for sights and sounds we have entirely invented.

29. Ryle, 1949 p.253.

30. Ryle, 1949 pp.254-5.

31. Ryle, 1949 p.255.

32. As is noted by Passmore [1966 p.448]. A notable instance is that of Place [1956], who broadly accepts (and continues to accept) Ryle's analysis of the majority of mentalistic concepts, but cannot see that Ryle can satisfactorily deal with concepts like consciousness, or with the 'having' of objects of consciousness, like sensations and imagery. Place is thus led to propose his thesis that these mental processes are (contingently) identical with brain processes. Unlike later 'identity' theorists, such as Armstrong [1968], Place would seem to prefer to push Rylean or Behavioristic analyses of mental concepts as far as he can. Perhaps they can be pushed further than he thinks.

33. 1971 p.58n..

34. Shorter, 1952.

35. We have already considered Shorter's views in §II.C.1, above.

36. Hannay, 1971 pp.58f..

37. English version, Ryle [1971]. Interestingly the purpose of this paper is to compare the philosophical approach of *The Concept of Mind* with the phenomenological heritage of continental philosophy, the heritage to which he had once been attracted himself.

38. Ryle, 1971 p.193 - original French 1962.
39. Ryle, 1971 p.193.
40. Ryle, 1971 p.194.
41. Ryle, 1971 pp.193-4.
42. Ryle, 1949 pp.191,228f..
43. See Ryle, 1949 p.211.
44. Or otherwise acting as if one has seen it. Someone might pretend to see a dragon by saying that they see it, or by cringing away, but such activities provide neither necessary nor sufficient criteria for saying that they have visualized it.
45. 1966.
46. See e.g. Gregory, 1972; Gibson, 1966 chap.2.
47. Gregory in particular, but not alone, has persistently characterized Gibson as proposing a **passive** theory of perception [e.g. Gregory, 1972, 1974, 1981 p.373.]. The reasons (not all bad ones [see Ben-Zeev, 1981 p.138]) behind such persistent misinterpretations of Gibson are explored, most illuminatingly, to my mind, by Bickhard & Richie [1983]. However, there does seem to be a real difference between how Gregory and Gibson conceive of action. Gregory conceives it as essentially mental and Gibson as primarily bodily.
48. Gruber, 1967 p.937.
49. Gruber, 1967 p.937.
50. Gruber, 1967 p.942.
51. Gibson notwithstanding.
52. Rather like Gibson.
53. 1966 pp.172f..

Notes to §II.D.2.

1. Neisser, 1967 p.139.
2. Yarbush, 1967 chap.3.
3. Yarbush, 1967 p.115.
4. Yarbush [1967 chapter 3]. Steinman, Cunitz,