CHAPTER 7

Buddhist Meditation, Flow, and Ritual

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Ever since the 1970s, when Mihaly Csikszentmihalyi introduced the notion of *flow* into psychology (see Csikszentmihalyi 1975; 1990), this notion has drawn the attention of scholars in the humanities. Since flow has been studied in numerous contexts[1] and at least one promising theory has been developed around it (the 'transient hypofrontality hypothesis'), this essay will consider what we can learn from it in connection with Buddhist meditation and ritual.

What is this state of flow? In a recent publication, Csikszentmihalyi describes it as a 'transient state [that] is characterized by focused attention on a limited stimulus field containing challenges matched or marginally higher than the person's skills, and it is sought out by people because the state is an enjoyable one that they wish to experience again and again'. It is, moreover, 'characterized by loss of self-consciousness, a distorted sense of time's passage, and the merging of action and awareness' (Csikszentmihalyi & Nakamura 2018: 102). Furthermore, '[i]ntense concentration [is] perhaps the defining quality of flow' (Csikszentmihalyi 2014: 243; from Nakamura & Csikszentmihalyi 2002). Flow is indeed an altered state of consciousness[2] characterized by effortless concentration or, as I would rather put

it, mental absorption (to be discussed later in this essay). It shares this feature with certain other altered states of consciousness, including hypnotic trance, deep mystical experience, profound prayer, and certain forms of meditation. Mental absorption does not characterize all altered states of consciousness. Among the states it does not necessarily characterize, we must count those induced by drugs, psychotic experiences, and others.

The study of flow has given rise to an interesting theoretical development that also covers (or claims to cover) other altered states of consciousness, the 'transient hypofrontality hypothesis' (Dietrich 2003; 2004; 2007: 242). According to this theory, flow and other altered states of consciousness are principally due to transient prefrontal cortex deregulation. Transient hypofrontality enables the 'temporary suppression of the analytical and meta-conscious capacities of the explicit system', i.e. of the system responsible for conscious activities (Dietrich 2004: 746).[3] The (unconscious) implicit system now takes charge of on-going activities, i.e. effortless execution of skill-based knowledge supported primarily by subcortical structures. In other words, in this theory, transient hypofrontality can be understood as a neuroanatomical correlate underlying the experience of altered states of consciousness. Its effect is understood through the intermediary of the explicit and implicit systems of mental functioning.

The present essay will initially focus on this last aspect of the theory.[4] Leaving aside its neuroanatomical part (which gives the theory its name), it will concentrate on the claimed explanation of altered states of consciousness through the explicit and implicit systems of mental functioning. The explicit system, to state it once more, is responsible for our consciously steered activities, whereas the implicit system takes care of on-going activities that are not in need of conscious supervision. Altered states of consciousness, according to this theory, are the result of the temporary suppression of the capacities of the explicit system.

This theory—or perhaps rather, this part of the theory—will be our point of departure. It makes sense of flow in some of its manifestations, in that activities in which flow manifests itself appear to be largely governed by the implicit system, in the sense that these activities do not need detailed conscious

supervision. However, there is a question: how does it account for varying depths?[5] In many forms of altered states of consciousness involving mental absorption—such as hypnotic trance, mystical experience, meditation[6]—there is talk of varying degrees of depth: one hypnotic trance may be deeper than another,[7] and the same applies to mystical experiences and stages of meditation (e.g. Gifford-May & Thompson 1994, Piron 2001 and Reavley & Pallant 2009).

In order to explore this aspect of altered states of consciousness, the study of meditation may be promising, given that meditational states—unlike hypnotic trance[8] and mystical experience—tend to be consciously evoked and controlled by the person concerned. I will concentrate on a sequence of meditational states of varying depths frequently described in the early Buddhist texts: the so-called four stages-of-meditation (Sanskrit *dhyāna*, Pali *jhāna*) that are part of what has been called the 'stereotyped detailed description of the Path of Liberation':[9]

> Having thus abandoned these five hindrances, imperfections of the mind that weaken wisdom, quite secluded from sensual pleasures, secluded from unwholesome states, he enters upon and abides in the first stage-of-meditation that is born of seclusion, which is accompanied by applied and sustained thought and consists of rapture and pleasure. [...]
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> Again, with the stilling of applied and sustained thought, a monk enters upon and abides in the second stage-of-meditation, which has self-confidence and singleness of mind without applied and sustained thought, which is born of absorption and consists of rapture and pleasure. [...]
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> Again, with the fading away as well of rapture, a monk abides in equanimity, and mindful and fully aware, still feeling pleasure with the body, he enters upon and abides in the third stage-of-meditation, on account of which the noble ones announce: 'He has a pleasant abiding who has equanimity and is mindful.' [...]
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> Again, with the abandoning of pleasure and pain, and with the previous disappearance of joy and grief, a monk enters upon and abides in the fourth stage-of-meditation, which has neither-pain-nor-pleasure and purity of mindfulness due to equanimity. [...][10]

The authors of these texts clearly thought of meditation as a process in which altered states of consciousness of different depths can succeed each other in a process toward ever greater depth.

Let us now return to the theory according to which altered states of consciousness are the result of the suppression of the activities of the explicit system of mental functioning. This theory might suggest that the line of demarcation between the explicit and the implicit systems is fixed. If so, it is not clear how there can be varying depths of altered states of consciousness.[11] Accepting varying depths suggests that the line of demarcation between the explicit and the implicit system may not be fixed,[12] and indeed that there is a continuum of states of consciousness, a sliding scale along which different states of consciousness can be arranged. This continuum then represents continuity between 'normal/ordinary' states of consciousness and 'altered' states of consciousness.

Among the reasons to accept that the explicit system *can* indeed be extended at the expense of the implicit system, certain exercises presented in the early Buddhist texts have their place.[13] The goal of these exercises can be taken to be to extend the explicit system and reduce the implicit system. This will be clear from the text now to be considered. Note that these exercises do not by themselves aim at attaining altered states of consciousness; they are preliminary exercises that aim at moving the line of demarcation that separates the two systems.

Shortly before the four-stages-of-meditation considered previously, the stereotyped description describes the following preliminary practice:[14]

> He becomes one who acts in full awareness when going forward and returning; who acts in full awareness when looking ahead and looking away; who acts in full awareness when flexing and extending his limbs; who acts in full awareness when wearing his robes and carrying his outer robe and bowl; who acts in full awareness when eating, drinking, consuming food, and tasting, who acts in full awareness when defecating and urinating; who acts in full awareness when walking, standing, sitting, falling asleep, waking up, talking, and keeping silent.

This practice is known by the name mindfulness (Sanskrit *smṛti*, Pali *sati*), and is referred to by this name in the immediately following paragraph. Elsewhere in the canon it is described in great detail.[15] It aims at bringing all activity into consciousness, including activity that is commonly carried out unconsciously.[16] In being constantly aware of every on-going activity, the practitioner's

obvious aim is to reduce the extent of the implicit system and expand the explicit system (even though this terminology is not, of course, used in the early texts). It may be repeated that the immediate aim of these practices is not to reach an altered state of consciousness.[17] Rather, these exercises are ancillary and create a situation in which there is place for deeper states of meditation (or flow) than there would be without them.[18]

All this suggests that an extension of the realm of the explicit system is possible, and that this extension can create a condition favourable to the attainment of a deeper altered state of consciousness. This would then mean that the line of demarcation between the two systems is flexible and can actually move. The extension of the realm of the explicit system can prepare the mind for a deeper hypnotic trance, a deeper state of meditation, or indeed a deeper experience of flow.

I will return to the question how varying depths in altered states of consciousness are realized. Before doing so, look at the remarkable parallel between Buddhist mindfulness and what has been called *ritualized action*.[19] Ritualized action (or ritualized behaviour) is characterized by its focus on the details of performance and 'goal-demotion'. Boyer and Liénard (2006: 605) put it as follows: 'People's attention is typically drawn to the details of performance, the particular direction of a gesture, the specific number of times an action should be performed, and so on. Conversely, the description of action in terms of goals is either not available or in any case irrelevant.' This is a crucial aspect of ritualized action. Boyer and Liénard continue on p. 606:

> ... ritualized acts are very different from other routines. However often an individual may perform a ritualized action, it does not seem to become automatic. On the contrary, it remains constrained by high-level cognitive control. Ritualized actions as described here require high cognitive control because the rules often apply to familiar actions (e.g., walking, talking, preparing food) and turn them into more difficult task (e.g., walking *without* treading on the line). This clashes with a commonsense notion that rituals only include actions that one performs 'routinely' or 'without thinking'. Indeed, it is essential to our model that the component of rituals that we called Ritualized Behavior cannot be automatic.

The resemblance between ritualized behaviour and Buddhist mindfulness strikes the eye. One could even be tempted to say

that ritualized behaviour of this kind *is* a form of mindfulness practice. This suggests that, just as mindfulness allows the Buddhist meditator to enter into a deeper state of meditation, so does the performance of ritualized action allow the practitioner to enter into a deeper ritual trance.[20] One might even surmise that such rituals are performed *in order to* allow the performer to enter into such a trance.

At this point, it will be useful to return to the question how different depths of altered states of consciousness can be accounted for. The flexible line of demarcation between the explicit and the implicit system may explain something, but not enough. A clearer understanding is gained by introducing the notion of mental absorption.

In principle, *absorption* is no different from the faculty of *concentration* or *focused attention* (Bronkhorst 2017; see also Harris et al., 2017; Peifer et al., 2014; Manzano et al., 2010).[21] It is a *mental state*, not be confused with the *personality trait* called *absorption* that is measured by the Tellegen Absorption Scale (Tellegen & Atkinson 1974). I use the term *absorption* where I wish to emphasize that this common faculty (that we humans share with many other animals) can, in exceptional circumstances, reach far greater depths than we are used to in daily life. Absorption can also have certain cognitive and affective effects (to be discussed later in the essay), but these are not necessarily noticed unless the state of absorption is exceptionally deep. And our reflections so far suggest that the larger the realm of the explicit system of mental functioning, the deeper absorption can be. The playing field of the faculty of absorption (and of concentration in general) appears to be largely or wholly confined to the part of the mind that is covered by the explicit system, excluding the part covered by the implicit system.

Altered states of consciousness that are characterized by mental absorption (= concentration, focused attention) include flow,[22] hypnotic trance,[23] deep mystical experience and, of course, the form of Buddhist meditation considered previously.[24] Since absorption is a form of concentration, the altered states of consciousness to which it gives access can be more or less deep.

There is an interesting direct confirmation of the claim that mental absorption and a reduction of the realm of the implicit system go hand in hand. The implicit system, as we saw, is

responsible for automatic behaviour, activities that are not in need of conscious supervision or may even resist it. Bodily tics are among the most irritating that fall into this category. One might expect that some of those tics will disappear, at least temporarily, in states of absorption. Research, as it turns out, confirms this. The tics of Tourette syndrome reduce in frequency as a result of hypnosis and self-hypnosis (Kohen & Botts 1987; Raz et al., 2007).

The role played by absorption does not only explain that the altered states of consciousness concerned can be more or less deep; it also explains the tendency to associate some of these states with religion, and the pleasure they give. The following observations may clarify this.

Absorption (concentration, focused attention) reduces mental associations (including sensory input). This is true of ordinary concentration (we may not notice a sound when focusing on a task), but even more so in the case of the profound focusing of attention we call absorption. We do not, to be sure, *feel* this reduction, but we undergo its effects. Our perception of the world and of ourselves is interpreted in the light of and codetermined by those mental associations. Their reduction, if strong enough, will have noticeable cognitive effects, as will be clear from the following reflections.

It is well known that our perception of the world and of ourselves is *interpreted* perception. Already William James (1890: II: 103) formulated the following *general law of perception*: 'whilst part of what we perceive comes through our senses from the object before us, another part (and it may be the larger part) always comes ... out of our own head'. More recent philosophers and scientists have confirmed this at numerous occasions (see, for example, Searle 2010; Hoffman 1998; 2012). Chris Frith (2007: 132) expresses it in the following words: 'What I perceive are not the crude and ambiguous cues that impinge from the outside world onto my eyes and my ears and my fingers. I perceive something much richer—a picture that combines all these crude signals with a wealth of past experience.' Hofstadter and Sander (2013: 171) add: 'We perceive through our sensory organs, to be sure, but no less through our concepts; in other words, we perceive not just physiologically but also intellectually.' And John

Searle states, in his latest book (2015: 73): 'What I am arguing is that the interpretation of a visual experience ... will be a function of the conceptual apparatus that the interpreter brings to the experience.'[25] Neurological studies are in full agreement with this. Joseph LeDoux (2019: 305) records what he calls 'a standard view of higher-order perceptual awareness', saying: 'while the higher-order network receives some sensory inputs, most of the inputs are from circuits involved in mnemonic and conceptual processing'.[26] Emotions should not be forgotten either: 'What we perceive isn't based purely on a detailed analysis of the sensory information supplied, but is tweaked and altered by the emotional associations triggered by whatever it is we're looking at.'(Burnett 2018: 77)[27]

The result is that our perception can be differently interpreted, thus giving rise to a different awareness. William James (1902: 374) expressed this as follows, and many others, including Oliver Sacks (2012: 91), agree with him: 'Our normal waking consciousness, rational consciousness, as we call it, is but one special type of consciousness, whilst all about it, parted from it by the filmiest of screens, there lie potential forms of consciousness entirely different.'

It goes without saying that not all forms of focused attention have noticeable cognitive effects. In the case of ordinary concentration, and in most cases of flow, these effects may not be strong enough for us to pay heed to them (perhaps as the result of a degree of cognitive rigidity without which our daily lives would risk becoming chaotic),[28] but in the case of deep absorption they may lead to a different experience of the world and of ourselves. Absorption will in such cases profoundly affect one's state of consciousness.

Deep absorption can also give rise to pleasure. The enjoyable side of the flow experience is one of the latter's defining features. Meditators and mystics frequently report experiencing ecstasy (sometimes called enstasy) (Bronkhorst 2012: 202 [Appendix 2]). The precise reasons why absorption gives rise to pleasure are as yet poorly understood, but inroads into this field are being made (e.g. Hagerty et al., 2013; Yamashiro 2015; Bronkhorst 2012: 142).[29]

These cognitive and affective effects of absorption can, in extreme cases, convince people that they have entered a different reality altogether.[30] Indeed, the world experienced in such states has little in common with the world of every-day experience, and the pleasure that is felt is not associated with any of the habitual sources of pleasure.

For reasons outlined above, we can now add ritualized behaviour to the practices that may generate states of absorption. Not all ritualized activities are associated with religion,[31] but it can no longer cause surprise that many are. By giving rise to a completely different perceptual input (not to mention a completely different experience of oneself) and to feelings of pleasure that have no place in the ordinary world, ritualized activities are often understood to provide access to a higher reality.

Let us, at this point, return to the transient hypofrontality hypothesis, or rather to the part of that hypothesis that was our point of departure: altered states of consciousness result from the 'temporary suppression of the analytical and meta-conscious capacities of the explicit system'. This is precisely what absorption does. In the light of this hypothesis, it is not surprising that absorption can give rise to altered states of consciousness. Our reflections add that altered states of consciousness can be more or less profound as a result of the fact that the range of the explicit system is not fixed but can be extended, with a consequence that absorption can be more or less deep.

So far, we have skipped questions regarding the parts of the brain that are involved in the production of altered states of consciousness. These questions do not constitute the primary subject of this essay, but in conclusion a few words can be said. I argued that a reduction of the realm of the implicit system opens the way for deeper states of absorption, without specifying which parts of the brain are involved. Recent research throws some light on this. Recall that the implicit system of mental functioning is responsible for automatic behaviour. Well, it appears that the so-called default mode network of the brain is involved in these automatic activities (Vatansever et al., 2017).[32] In view of the reflections presented in this paper, one might expect that deep absorption, by reducing the realm of the implicit system, will decrease activity in the default mode network. Experiments have

shown that hypnosis—which is one way in which states of deep absorption can be attained—does indeed do so (Kihlstrom 2018: 61; with references to Deeley et al., 2012, Demertzi et al., 2011 and McGeown et al., 2009).[33] The same is true of the experience of awe, which may also be looked upon as being associated with states of absorption (Elk et al., 2019). Absence of absorption, on the other hand, as we find it for example in nondirective meditation, does the opposite: it activates the default mode network (Xu et al., 2014). Indeed, attentional lapses appear to be due to the intrusion of increased activity in the default mode network (Broyd et al., 2009: § 3.1). These experiments may be considered as providing indirect evidence for the hypothesis here put forward regarding the role that the explicit and the implicit systems play in the production of the altered states of consciousness that are associated with states of absorption.[34]

What can we conclude from the preceding reflections? They show, I think, that it makes sense to look upon mental absorption as a shared feature of many altered states of consciousness: Buddhist meditation, flow, ritualized activities, hypnotic trance, prayer, mystical states. Absorption is so central to all these states that it appears feasible to use it as the single yardstick by which to measure the depths of all of them. Unfortunately, no method has been proposed as yet to measure depth of absorption.[35] The search for such a method should be looked upon as a priority for future research.[36]

It has also become clear that altered states of consciousness (or at least the ones considered here) may have much to do with the interaction between the mental systems that are responsible for conscious and unconscious activities: the explicit and the implicit systems respectively. Both Buddhist meditation practices and ritualized activities are highly suggestive in this respect. Future research may find an answer to the question whether practices similar to Buddhist mindfulness also play a role in other altered states of consciousness (such as flow, hypnotic trance, mystical states).

Appendix: Another View of Altered States of Consciousness

Arne Dietrich, who proposed the transient hypofrontality hypothesis, draws rather different conclusions from this theory about altered states of consciousness than the ones studied previously. Consider the following passage (Dietrich 2007: 244):

> [A] corollary of the [transient hypofrontality hypothesis] becomes apparent that argues against a widely held belief about [altered states of consciousness]. The concept of hierarchically structured mental functions entails that full-fledged consciousness is the result of a fully operational brain. This means that default consciousness is the highest possible manifestation of consciousness, and all [altered states of consciousness] are, by virtue of representing an alteration to a fully functional brain, a reduction in consciousness. This is also true for [altered states of consciousness] that are often presumptuously seen as higher forms of consciousness, such as transcendental meditation or the experiences reported after taking 'mind-expanding' drugs (whatever that means). This view is in contrast to other theorists, for instance, James (1890) or Tart (1972), who maintained that normal consciousness is not qualitatively different from any other. It is difficult to imagine what higher consciousness might look like in terms of brain activity or phenomenology, but shouldn't it entail an enhancement of mental abilities ascribed to the prefrontal cortex rather than their subtraction?

Recall at this point that absorption, like ordinary concentration, reduces mental associations (including sensory input). A person in a state of concentration may not hear or see certain things, and her mind may not wander as freely as when she is not concentrating. In terms of Dietrich's analysis, her brain is now not fully operational, and her consciousness is not full-fledged. According to this analysis, the undirected and unordered sequence of mental images and incomplete thoughts that fill the head when there is no attention to steer them constitutes a higher, indeed the highest possible manifestation of consciousness.

It is hard to believe that anyone, including Dietrich himself, seriously believes this. Well, he doesn't. This is clear from some remarks in his chapter on meditation (p. 268): 'if we consider the neuroimaging data we must conclude that meditation is associated with activation of prefrontal regions, but if we examine the EEG data we are obliged to come to the opposite

opinion'; 'meditation is a state of transient hypofrontality with the exception of executive attention'. We can safely conclude that certain meditative states are not, even from Dietrich's point of view, lower forms of consciousness.

About hypnosis Dietrich says the following (p. 269; also Dietrich 2003: 244): 'Forty percent of hypnotized subjects describe it as an altered state of consciousness, while sixty percent compare it to a period of focused attention'.[37] After what has been said so far about the relationship between absorption and altered states of consciousness, these two descriptions no longer look contradictory: we can accept hypnotic trance as an altered state of consciousness while recognizing the central role that focused attention (= absorption) plays in it. Moreover, the similarity with meditation seems hard to deny. Not even Dietrich does so, as when he says: 'In meditation and hypnosis ... concentration on [a] single focal point is so total and our attentional resources so limited [that] other phenomenological content is prevented from entering consciousness' (p. 273). As in the case of meditation, the claim that hypnotic trance is a lower form of consciousness is hard to maintain on the basis of the transient hypofrontality hypothesis.[38]

NOTES

1. E.g. flow accompanying elite sports (Swann et al., 2012; Dietrich & Audiffren 2011), education (Liao 2006), piano playing (Manzano et al., 2010), cognitive tasks (Hirao 2014), and elsewhere.
2. Ludwig (1966: 225) defined altered states of consciousness as follows: 'mental state(s), induced by various physiological, psychological, or pharmacological manoeuvres or agents, which can be recognized subjectively by the individual himself (or by an objective observer of the individual) as representing a sufficient deviation in subjective experience or psychological functioning from certain general norms for that individual during alert, waking consciousness'. Dietrich (2007: 242) cites two other definitions—by Tart (1972: 1203) and Farthing (1992: 205)—but objects to all of them because they all rely on subjective experience. A recent issue of the *Journal of Consciousness Studies* (vol. 25, no. 11–2, 2018) is dedicated to altered states of consciousness.
3. 'The explicit system is a sophisticated system that is tied to consciousness and thus capable of representing knowledge in a higher-order format.

In contrast, the implicit system is inaccessible to consciousness.' (Dietrich & Haider 2017: 3–4)

4. Another aspect will be briefly discussed at the end of this essay.
5. For an exploration of this question, see Mohr 2018. A 'Flow State Scale' to measure depth of flow in sport and physical activity has been developed by Jackson and Marsh already in 1996.
6. We should probably add prayer. Here too mental absorption is central; see Luhrmann et al., 2010; Luhrmann 2012.
7. Cardeña et al., (2012: 2) state:

   > the concept of depth, used to characterize hypnotic experience, is a metaphor that implies varying changes in experience within the same state, and the validity of this characterization is supported by studies showing a positive correlation between reports of greater depth and suggested and spontaneous behavioral and experiential changes (Kahn et al., 1989; Laurence and Nadon 1986; Tart 1970).

8. An exception must of course be made for self- or auto-hypnosis.
9. Schmithausen (1981). On p. 204 n. 15, Schmithausen gives detailed references to a great number of occurrences of this stereotyped description. Frauwallner (1953/1973: 127–8) refers to it as the 'central core and essential content' of the preaching of the Buddha. See further, Bronkhorst 2009: 12–7.
10. *The Middle Length Discourses of the Buddha: A New Translation of the Majjhima Nikaya*, original translation by Bhikkhu Nanamoli, translation edited and revised by Bhikkhu Bodhi, Wisdom Publications, Boston, 1995, pp. 275, modified. This translates *Majjhima Nikaya* I, p. 181–182.
11. Dietrich (2007: 243) *does* make a distinction between 'altered states that are marked by severe prefrontal hypofunction, such as dreaming or various drug states' and 'altered states that are marked by less prefrontal deactivation, such as long-distance running' which result, respectively, in 'an extraordinarily bizarre phenomenology' and in a 'change to experience [that] is milder'. However, the states with severe prefrontal hypofunction selected by Dietrich, 'dreaming or various drug states' (rather than hypnotic trance, meditation, or even prayer), are not, or not necessarily, associated with mental absorption, so that we do not necessarily have to assume that they are more or less deep
12. This assumption has the further consequence of putting question marks behind too rigidly interpreted dual-process models of cognition; cp. Melnikoff & Bargh 2018.
13. This position does not only depend on early Buddhist texts and finds expression already in the title of an article that came out more than half a century ago: 'De-automatization and the Mystic Experience'

(Deikman 1966). De-automatization is here conceptualized (p. 329) 'as the undoing of automatization, presumably *by reinvesting actions and percepts with attention*' (italics in original).

14. *The Middle Length Discourses of the Buddha* (see note 10), pp. 274. This translates *Majjhima Nikaya* I p. 181.
15. E.g. *The Middle Length Discourses of the Buddha* (see note 10), pp. 145. This translates *Majjhima Nikaya* I p. 55. Quoted in Bronkhorst 2012: Appendix II.1, §5.
16. The literal meaning of *smṛti* is 'memory'. The role of memory to distinguish goal-directed behavior (the explicit system) from habits (the implicit system) is underlined by Joseph LeDoux (2019: 212) in the following passage: 'Habits only require mere association between the response and the ... reinforcer — the reinforcer stamps in the response, and when a similar situation occurs later, the response is repeated. But goal-directed responses require a memory of the value of the outcome that stamped in the response in the first place'.
17. Much depends of course on how one defines altered states of consciousness. The Buddhist text from which the passages mentioned earlier have been taken appears to state that mindfulness can lead to the first stage-of-meditation but needs absorption to reach deeper stages.
18. The early Buddhist texts leave no doubt about this, but they have given rise to two different forms of meditation in the modern world; see, e.g. Dietrich 2007: 267. It is not surprising that the recent book by Goleman and Davidson (*The Science of Meditation*; 2017), which deals primarily with mindfulness, emphasizes the presence of 'stronger selective attention, decreased attentional blink, greater ease in sustaining attention' (p. 273–4; see further p. 128) among its benefits.
19. Victor Turner, referring back to an unpublished manuscript by Csikszentmihalyi of 1972, made a connection between flow and ritual already in 1974.
20. Sometimes, as in certain Zen/Ch'an traditions, mundane tasks are used as a form of meditation training, thus combining ritualized behaviour and meditation.
21. Psychologists may prefer *focused attention* to *concentration*. However, this choice of terminology has two disadvantages. (1) It runs the risk of suggesting that absorption must have an object. This is not necessarily the case; see Sullivan 1995; Forman 1999. Note also that Tononi & Koch (2015: 9; cf. Koch 2019: ch. 10) draw attention to a counterintuitive prediction of their theory of consciousness (IIT = Integrated information theory), viz. 'that a system such as the cerebral cortex may generate experience even if the majority of its pyramidal neurons are nearly silent, a state that is perhaps approximated through certain meditative practices that aim at

reaching 'naked' awareness without content'. (2) Unlike *concentration* and *absorption*, the expression *focused attention* does not suggest that there are varying degrees of depths of this state.

22. See the definitions by Csikszentmihalyi and Nakamura at the beginning of this essay.
23. Cp. Spiegel & Spiegel 2004: 34: 'Hypnosis is essentially a psychological state of aroused, attentive, receptive focal concentration with a corresponding diminution in peripheral awareness'. This almost reads like a definition of absorption.
24. Not all forms of meditation are characterized by mental absorption. For those that are and are practised today, see, e.g. Wallace 2006; Brasington 2015.
25. Sacks's chapter on *mishearings* (2017:123–7) is interesting in this context. Martinez-Conde and Macknik's *Champions of Illusion* (2017) gives many examples of visual illusions.
26. Further LeDoux 2019: 308:

    > when you consciously notice an apple and verbally declare that you see it, it is not because the apple, in all its glory, is necessarily represented in your prefrontal higher-order network. You likely 'see' a conceptual abstraction based in part on the lower-order sensory representation of the actual apple, but also on memories of the features of past apples that contribute to your scheme/mental model of apples. The result is a representation that subjectively looks like what you *expect* an apple to look like, even if the pure sensory representation differs somewhat from this expectation, or even when it does not exist at all.

27. Cp. LeDoux 2019: 350: 'human emotions are autonoetic conscious experiences that are cognitively assembled, much like any other autonoetic conscious experience'.
28. Cp. Carhart-Harris et al., 2014: 10: 'the brain self-organizes under normal conditions into transiently stable spatiotemporal configurations', with references to further secondary literature.
29. Glucklich's *The Joy of Religion* (2020) does not consider the role of absorption. Note his observation (p. 30): 'The only true difference, apparently, is that mundane pleasure appears to be caused by some trigger while the sublime pleasure does not appear to be caused in such a way'.
30. On the link between absorption and religion, see Bronkhorst 2017.
31. 'Ritualized behavior, intuitively recognizable by its stereotypy, rigidity, repetition, and apparent lack of rational motivation, is found in a variety of life conditions, customs, and everyday practices: in cultural rituals, whether religious or non-religious; in many children's complicated routines; in the pathology of obsessive-compulsive

disorders (OCD); in normal adults around certain stages of the life-cycle, birthing in particular'. (Boyer & Liénard 2006: 595).

32. 'Structurally, the main components of the DMN (= default mode network, JB) include the posterior cingulate cortex (PCC)/precuneus and ventromedial prefrontal cortex (vmPFC ...). These two 'hubs' are highly interconnected with lateral cortices including the inferior parietal lobute (IPL) and temporo-parietal junction (TPJ ...)'. (Danckert & Merrifield 2018: 2508).
33. Both hypnosis and meditation can give rise to de-automatization; Lifshitz et al., 2012.
34. Also, the use of psychedelic drugs can be associated with 'a collapse of the normally highly organized activity within the default-mode network' (Carhart-Harris et al., 2014). If these drugs do indeed make normally unconscious processes conscious—and therefore expand, in a way, the explicit system at the expense of the implicit system—this would not be surprising.
35. Cp. Ott 2007: 262: 'In contrast to the absorption trait, ... standards for the definition and assessment of *states* of absorption have not been established thus far.' Could reduced activity of the default mode network be used as a measuring device?
36. Remembering the observation attributed to Lord Kelvin (= William Thomson): 'When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind.'
37. See also note 23, above.
38. According to Georgiadis et al., 2007, male ejaculation is accompanied by deactivations throughout the prefrontal cortex. Does this mean that the experience of orgasm is a 'less high' manifestation of consciousness?

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