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Film, Metaphor, and the Reality of Time

2008 marks the hundred-year anniversary of both McTaggart's essay on the unreality of time,¹ and Minkowski's famous lecture introducing the notion of a unified space-time.² Both McTaggart and Minkowski doubt the aptness of the common-sense metaphors of the "passage" of time, a doubt that has become almost paradigmatic in twentieth-century mainstream philosophy and science. From the perspective of my present talk, the formulations applied by contemporary physicist Julian Barbour, an influential heir to the Minkowski tradition, are particularly instructive. As he puts it, time does not really flow, it is the brain that "plays a movie" for us: "the brain in any instant always contains, as it were, several stills of a movie. ... when we think we are seeing actual motion, the brain is interpreting all the simultaneously encoded images and, so to speak, playing them as a movie."³ In my talk, in the first section "Spurious Arguments, False Starts", I will suggest that neither McTaggart, nor indeed Minkowski and those in his wake, have made a compelling case for a static universe; that, at the same time, the findings in recent neurophysiology to the effect that the brain does in fact construct a movie for us do not put in doubt the reality of time, since the movie we see is certainly not illusionistic; and that realist philosophies of film go a long way towards making us receptive to, even if not actually providing, arguments for the reality of time. I am setting the stage for such an argument in the second, brief, section of my talk, where under the heading "The River of Time Metaphor" I point to the common-sense experience of the flow of time as reflected upon in the history of philosophy. The argument itself I will attempt to outline in the third, somewhat more extended, final section, "The Pressure of Time".

Spurious Arguments, False Starts

McTaggart's argument in his 1908 *Mind* paper is notoriously elusive, and has been subjected to some devastating criticisms in the course of the past hundred years. However, convincing refutations notwithstanding, the argument does still gain adherents. The obvious reason for this is that McTaggart's position has become mixed up with, and won undeserved respectability from, the Einstein–Minkowski conception of space-time. It would be as easy as it would be boring to list a great number of places where McTaggart on the one hand, and relativity theory on the other, are mentioned in one breath; let me single out just three. In the Einstein volume in the series *The Library of Living Philosophers*, the chapter by Kurt Gödel begins with a note referring to McTaggart; Mellor's

¹ John Ellis McTaggart, "The Unreality of Time", *Mind* 17 (1908), pp. 456–473.

² Hermann Minkowski, *Raum und Zeit* [Space and Time], talk given at Cologne, September 21, 1908. English translation in H. A. Lorentz, A. Einstein, H. Minkowski and H. Weyl, *The Principle of Relativity: A Collection of Original Memoirs on the Special and General Theory of Relativity* (1923).

³ Julian Barbour, *The End of Time: The Next Revolution in Our Understanding of the Universe* (1999), London: Phoenix, 2000, p. 29.

1998 book *Real Time II* argues against, as he puts it, the often-voiced falsehood that McTaggart's so-called "B-theory explains, and may even be entailed by, a key implication of Einstein's special theory of relativity, namely that the four dimensions of spacetime are in reality all alike";⁴ and Barbour himself notes that some ideas in McTaggart certainly match his own thinking, although of course the latter's arguments "are purely logical and make no appeal to physics".⁵ Now not just *any* appeal to physics will amount to a valid statement about the nature of reality; the appeals to physics by Barbour, Minkowski, or say Hermann Weyl, another famous German mathematician continuing the Minkowski–Einstein tradition, on closer examination turn out to be spurious. I have analyzed the case of Minkowski and Weyl elsewhere;⁶ time is pressing, so let me here just single out Barbour, who concedes that his the-brain-plays-a-movie-for-us formula is merely a metaphor, the real argument behind which comes, or rather might one day come, from some very abstract mathematics. As he puts it: "can the strong impression of time emerge from timelessness? It is a logical possibility, but the real test must await mathematical advances."⁷ And there is a philosophical background to the mathematical hypotheses: "Heraclitan flux", says Barbour at the very beginning of his book, "may well be nothing but a well-founded illusion."⁸ Or, as spelled out somewhat later: "I ... think", he writes, "that Plato was right when he said that Being ... is real, but that Becoming is an illusion".⁹

Now Barbour's backing down notwithstanding, the brain, as neurophysiology tells us, does indeed play a movie for us. The story is extremely complicated, the research ongoing, and I am certainly not in a position to be able to summarize the details, many of which are still controversial anyway. However, the essentials seem to be straightforward. The actual two-dimensional images projected onto our retinas, changing hundreds of times every second, by themselves add up to just a mess, with things made worse by asynchronous input from other sensory modalities. The images in fact reaching our brains have to be continuously edited, so as to make sense of the world before our eyes, conforming to the requirements of gestalt psychology, obeying the laws of Newtonian physics, happening in space and time. And what we hear, what we touch, as well as our motor sensations have to be added to our visual experience in temporal rhythms that, so to speak, re-create our sensory world in the image of the real world out there.

The world out there, happening in space and time, is the world, according to the realist tradition in film theory, that film captures. We can say, with Panofsky, that "the medium of the movies is physical reality as such",¹⁰ and also, more specifically, with Pudovkin, that "filmic space and filmic time" are created by "utilizing the pieces of real space and

⁴ D. H. Mellor, *Real Time II* (1998), London: Routledge, 2006, p. 47.

⁵ Barbour, *op. cit.*, p. 343.

⁶ See my "Visualization and the Limits of Scientific Realism" (2008), http://www.hunfi.hu/nyiri/Nyiri_VLSR.pdf.

⁷ Barbour, *op. cit.*, p. 54.

⁸ *Ibid.*, p. 1.

⁹ *Ibid.*, p. 45.

¹⁰ Erwin Panofsky, "Style and Medium in the Motion Pictures" (1934), repr. in Daniel Talbot (ed.), *Film: An Anthology*, New York: Simon and Schuster, 1959, p. 31.

real time";¹¹ or with Bazin, that "cinema is objectivity in time... Now, for the first time, the image of things is likewise the image of their duration."¹² We can say, with Walton, that what we see in a photograph or motion picture is not simply a representation of the object, but the object itself.¹³ And we can say, with Currie, that "there is no illusion of movement in cinema; there is real movement, really perceived... .. film does, or can, represent space and time realistically", and that "time, or the passage of time, is one of the things film represents".¹⁴ Indeed we can say, with Deleuze, and here I am quoting a formulation by Wartenberg: "what is distinctive about cinema is that it enables us to reflect on time and movement as a whole: this is because cinema allows us to imagine movement and time *itself*."¹⁵

But does realist film theory in fact bring us closer to proving the philosophical point that time is real? I have come, with Currie, to doubt this. Currie concedes that "[a] substantive theory of space and time ... might be true",¹⁶ but stresses that this has no relevance for the filmmaker; he has published a paper with the title "McTaggart at the Movies", but insists that what he has to say is really "independent of the whole issue of the reality of time",¹⁷ and indeed makes it clear that he has no intention of deciding "between 'three dimensionalism' and 'four dimensionalism' ".¹⁸ Now I cannot imagine four-dimensionalism – the idea that reality has no genuine time dimension – will hold. But suppose it does: what a realist film theory then actually amounts to is just a position according to which the illusion of a world happening in time is faithfully mirrored by film. To move beyond this impasse requires an altogether different strategy.

The River of Time Metaphor

The idea of the "Heraclitan flux", assumed by Barbour to be an illusion, has come down to us primarily through Plato's *Cratylus*, and the two oft-quoted Heraclitan fragments "everything flows and nothing stays" and "you can't step twice into the same river". The sources of both of these quotes are unreliable; but in the context of my present paper it does not matter a great deal whether they were formulated by Heraclitus in the late 6th century A.D., or by commentators some centuries closer to our age: they capture a primordial experience of the world. You hear echoes of it in Augustine, when he says that God's years "neither go nor come, but our years pass and others come after them, so that they all may come in their turn" and that "all time past is forced to move on by the incoming

¹¹ V. I. Pudovkin, "Film Technique" (1929), repr. in Talbot (ed.), *Film: An Anthology*, p. 278.

¹² André Bazin, "Cinematic Realism" (1958–62), repr. in Thomas E. Wartenberg and Angela Curran (eds.), *The Philosophy of Film: Introductory Text and Readings*, Malden, MA: Blackwell Publishing, 2005, p. 60.

¹³ Cf. Kendall L. Walton, "Transparent Pictures: On the Nature of Photographic Realism", *Critical Inquiry*, vol. 11, no. 2 (Dec. 1984). My wording here exploits Richard Allen's "Looking at Motion Pictures", *Film-Philosophy*, vol. 5, no. 25, August 2001 (<http://www.film-philosophy.com/vol5-2001/n25allen>).

¹⁴ Gregory Currie, *Image and Mind: Film, Philosophy and Cognitive Science*, New York: Cambridge University Press, 1995, pp. 34 and 79.

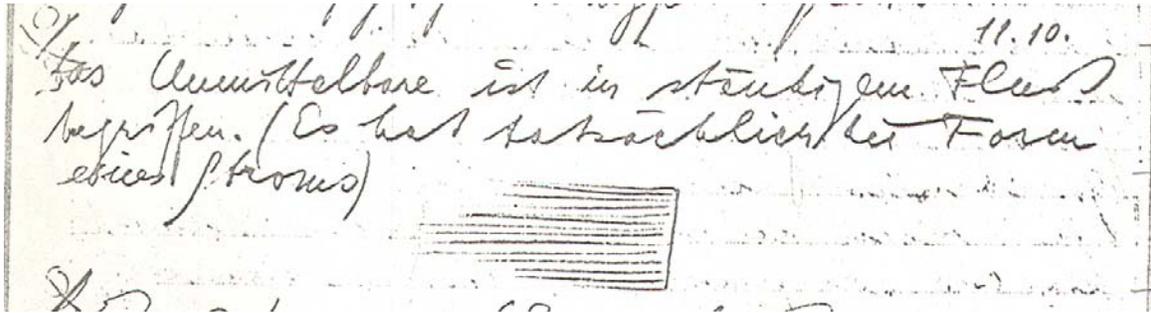
¹⁵ "Do We Need Film Theory?", in Wartenberg and Angela Curran (eds.), *The Philosophy of Film*, p. 7.

¹⁶ *Op. cit.*, p. 92.

¹⁷ *Ibid.*, p. 206.

¹⁸ *Ibid.*, pp. 36 f.

future".¹⁹ You hear echoes of it, more than two thousand years later, in Wittgenstein's remarks "The immediate finds itself in a constant flux [Fluß]. (It has in fact the form of a stream [Strom])",²⁰ and, "The stream of life, or the stream of the world, flows on and our propositions are so to speak verified only at instants".²¹ These remarks were jotted down in 1929; to the first one Wittgenstein even attached a drawing. Also, the time chapter of



Augustine's *Confessions* had an extraordinary, albeit ambiguous, impact on Wittgenstein, trying hard to fight off the experience of the passage of time. "It is strange", he wrote in 1930, "that in ordinary life we are not troubled by the feeling that the phenomenon is slipping away from us, the constant flux of appearance, but only when we philosophize. ... The feeling we have is that the present disappears into the past without our being able to prevent it. And here we are obviously using the picture of a film strip remorselessly moving past us, that we are unable to stop. But it is of course just as clear that the picture is misapplied: that we cannot say 'Time flows' if by time we mean the possibility of change."²² By 1934, when Wittgenstein began to dictate the so-called *Brown Book*, he felt he had escaped the "allurement" of the question of the passage of time. "It is clear", he said, "that this question most easily arises if we are preoccupied with cases in which there are things flowing by us, – as logs of wood float down a river. ... We then use this situation as a simile for all happening in time and even embody the simile in our language, as when we say 'the present event passes by' (a log passes by), 'the future event is to come' (a log is to come). We talk about the flow of events; but also about the flow of time – the river on which the logs travel."²³ I assume it was partly under the influence of the *Brown Book* that J. J. C. Smart wrote his classic 1949 paper "The River of Time". This is how the paper begins: "There are certain metaphors which we commonly feel constrained to use when talking about time. We say that we are advancing through time, from the past into the future, much as a ship advances through the sea into unknown waters. Sometimes, again, we think of ourselves as stationary, watching time go by, just as we may stand on a bridge and watch leaves and sticks float down the stream underneath us. ... Thus instead of speaking of our advance through time we often speak of the flow

¹⁹ Augustine, *Confessions*, Book XI.

²⁰ Ludwig Wittgenstein, MS 107, p. 159 (10 November 1929).

²¹ Ludwig Wittgenstein, *Philosophical Remarks* (1930), transl. by R. Hargreaves and R. White, Chicago: The University of Chicago Press, 1975, § 48 (cf. MS 107, p. 222, 1 December 1929).

²² *Ibid.*, § 52.

²³ Ludwig Wittgenstein, *The Blue and Brown Books*, Oxford: Basil Blackwell, 1958, pp. 107 f.

of time. ... These metaphorical ways of talking are philosophically important in a way in which most metaphorical locutions are not. They ... are, in some way, *natural* to us; at first sight, at any rate, it seems difficult to see how we could avoid them."²⁴ Difficult or not, Smart did his best to demonstrate the alleged spuriousness of these common-sense metaphors. By contrast, I believe we should strive to build up a philosophical strategy which in fact vindicates them. It is to the sketching of such a strategy I now turn.

The Pressure of Time

Doubt as to the reality of time can arise because, in contrast to our sense of vision, hearing, touch, and so on, we do not seem to have a *sense of time*. A magisterial presentation of the issue was provided by William James in his paper "The Perception of Time", published in 1887. "Let one sit with closed eyes", he wrote, "and, abstracting entirely from the outer world, attend exclusively to the passage of time". What do we perceive? Not, as it were, a "pure series of durations", but "[o]ur heart-beats, our breathing, the pulses of our attention, fragments of words and sentences that pass through our imagination".²⁵ Now heartbeats, breathing, attention, etc. all involve, as James learnt from Hugo Münsterberg in 1889, the play of muscular tension and relaxation. According to the future Harvard psychologist Münsterberg – still studying and teaching in Germany in the 1880s, by 1916 he came to write *Photoplay*, the first serious book in film theory – it is feelings in the muscles of the eye, the ear, and also muscles in the head, neck, etc., by which we estimate lengths of time. These "Spannungsempfindungen", *perceptions of tension*, "ausgelöst durch wirklich erfolgende Muskelkontraktionen oder durch die Erinnerung an solche", *triggered off by real muscular contractions or by memories of the same*, amount to an "unmittelbares Zeitgefühl", *a direct sense of time*²⁶ – a physical encounter with time, we might say. As James puts it, "muscular feelings can give us the object 'time' as well as its measure".²⁷

One does not need laboratory conditions to experience the muscular tensions signaling our struggle against time. In his 2006 book *The Secret Pulse of Time*, Stefan Klein gives a vivid description of the sort of situation we are all familiar with. "You are sitting in a taxi on your way to the airport", writes Klein. "Your taxi is caught in the morning rush hour, stopped at a red light. ... Green. 'Drive', you bark to the taxi driver, even though you know full well that he can't. – ... You would now be prepared to jump out of the taxi and run. ... people do not react only to what they perceive; they also envision the future. ... Even a glance at the calendar and a passing thought about everything that needs to get done before your vacation starts is enough to drive you into a full-fledged state of panic."²⁸ Even a glance at the calendar makes you experience specific muscular sensations. Rudolf Arnheim, in his 1954 book *Art and Visual Perception* – a work no less relevant to film theory than his 1932 classic *Film als Kunst*, "Film as Art" – gave a masterly sum-

²⁴ J. J. C. Smart, "The River of Time", *Mind*, vol. 58, no. 232 (Oct. 1949), p. 483.

²⁵ Cf. William James, *The Principles of Psychology*, New York: Henry Holt, 1890, pp. 619 f.

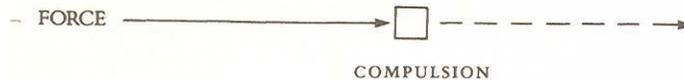
²⁶ Hugo Münsterberg, *Beiträge zur experimentellen Psychologie*, Heft 2: *Zeitsinn – Schwankungen der Aufmerksamkeit – Augensinn – Raumsinn des Ohres*, 1889, p. 20.

²⁷ James, *op. cit.*, p. 637.

²⁸ Stefan Klein, *The Secret Pulse of Time: Making Sense of Life's Scarcest Commodity*, New York: Marlowe & Co., 2007, pp. 195 f.

mary of a substantial research tradition which has demonstrated that to muscular sensations there correspond images of one's posture, schematic bodily images. And since the 1980s conceptual metaphor theory invites ever more detailed descriptions of how kinesthetic experiences give rise to so-called image schemas.

An image schema, as Mark Johnson defines it, is "a recurring, dynamic pattern of our perceptual interactions and motor programs"²⁹; image schemata function as "abstract structures of images"³⁰. Such a schema, for instance, is the COMPULSIVE FORCE schema. Johnson stresses that the concept "force" emerges from our *bodily experience* of force,



from our encountering obstacles that exert force on us, from "the experience of being moved by external forces, such as wind, water, physical objects, and other people",³¹ the experience that, say, "[w]hen a crowd starts pushing, you are moved ... by a force you seem unable to resist",³² and from our experience that we too can exert force on, in some cases even penetrate through, the objects resisting us. Force "is always experienced through *interaction*", force has a "directionality", and forces have "*degrees of power or intensity*".³³ Now it is image schemata that give rise to a great number of fundamental metaphors. Recall that according to conceptual metaphor theory, metaphor is only incidentally "a device of poetic imagination and the rhetorical flourish"³⁴, its essence consists in "*understanding and experiencing one kind of thing in terms of another*"³⁵. Exploiting the structure of the COMPULSIVE FORCE schema, Johnson arrives, for instance, at the metaphor SEXUAL APPEARANCE IS PHYSICAL FORCE. Building on what I have said in the foregoing, I suggest that a plausible metaphor to associate with the COMPULSIVE FORCE schema might be this one: THE PASSAGE OF TIME IS A PHYSICAL FORCE.

Time is a much-discussed topic in conceptual metaphor theory; let me single out, besides the names of Georg Lakoff and Mark Johnson, those of Joseph Grady, Lera Boroditsky, Mark Turner and Gilles Fauconnier,³⁶ and Vyvyan Evans.³⁷ The essential finding is that "[m]ost of our understanding of time is a metaphorical version of our understanding of

²⁹ Mark Johnson, *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*, Chicago: The University of Chicago Press, 1987, p. xiv.

³⁰ *Ibid.*, p. xix.

³¹ *Ibid.*, p. 45.

³² *Ibid.*

³³ *Ibid.*, p. 43.

³⁴ George Lakoff and Mark Johnson, *Metaphors We Live By*, Chicago: University of Chicago Press, 1980, p. 3.

³⁵ *Ibid.*, p. 5.

³⁶ See esp. their "Rethinking Metaphor", in Ray Gibbs (ed.), *Cambridge Handbook of Metaphor and Thought*, Cambridge: Cambridge University Press, to appear in November 2008.

³⁷ See his *The Structure of Time: Language, Meaning and Temporal Cognition*, Amsterdam: John Benjamins, 2004.

motion in space".³⁸ Another major insight is that, as Smart already realized, and as Lakoff and Johnson analyze in great depth in their book *Philosophy in the Flesh*, there are two related, but apparently rather different, ways to conceptualize time: first, by the "Moving Time" metaphor, and secondly, by the "Moving Observer, or Time's Landscape" metaphor. In conceptual metaphor theory, these are also mentioned as the "time-moving" and the "ego-moving" metaphors. Joseph Grady refers to them as the MOMENTS IN TIME ARE OBJECTS IN MOTION ALONG A PATH metaphor on the one hand (example: "Time flies"), and as the EXPERIENCE IN TIME IS OUR OWN MOTION ALONG A PATH one on the other (ex-

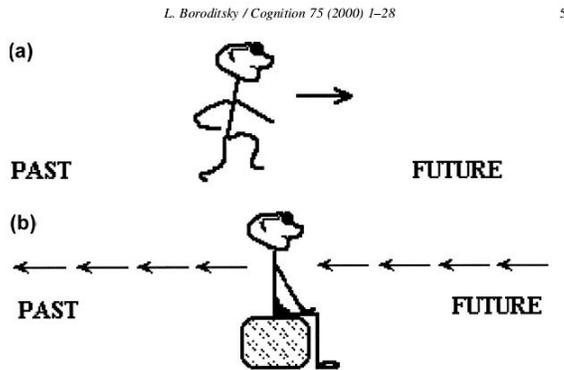


Fig. 1. (a) Schematic of the ego-moving schema used to organize events in time. (b) Schematic of the time-moving schema used to organize events in time.

From Lera Boroditsky, "Metaphoric Structuring: Understanding Time through Spatial Metaphors", *Cognition* 75 (2000)

ample: "Let's hope for the best as we enter the new year"). Lakoff and Johnson point out that these "two metaphors are, strictly speaking, inconsistent with each other: In one, times are objects that move past a stationary observer; in the other, times are locations in a landscape that an observer moves over. But these are actually minimally differing variants[,] ... *figure-ground reversals* of one another." *Figure-ground reversal*: this brings us back to gestalt psychology, to Rudolf Arnheim – and to film theory.

In his *Art and Visual Perception*, Arnheim refers at some length to the work of German-born psychologist Karl Duncker, who made the following discovery with respect to "figure" and "ground" in moving visual gestalts: the "figure" tends to move, the "ground" to stand still. The frames of reference are the observers themselves. When they, say, stand on a bridge and look at the moving water, their perceptions will be veridical; but when they fixate the bridge, they and the bridge may be seen as moving along the river. Duncker explained the phenomenon by pointing out that "the object fixated assumes the character of the 'figure', whereas the nonfixated part of the field tends to become ground".³⁹ Arnheim exploits this explanation to come to terms with a trivially well-known phenomenon in film. "[T]he setting photographed by the traveling camera", Arnheim points out, "is seen as moving across the screen, mostly because the viewer receives the kinesthetic

³⁸ George Lakoff and Mark Johnson, *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*, New York: Basic Books, 1999, p. 139.

³⁹ Rudolf Arnheim, *Art and Visual Perception: A Psychology of the Creative Eye* (1954), exp. and rev. ed. Berkeley: University of California Press, 1974, p. 380.

information that his body is at rest. Only in extreme cases, e.g., when enough of the entire environment is seen as moving, will the visual input overrule the kinesthetic."⁴⁰ Normally however, when our "muscular experiences" tell us that we are at rest, it is "the street [that] is seen as moving. It appears to be actively encountering the spectator as well as the characters in the film, and assumes the role of an actor among actors."⁴¹

But let me here add the obvious. Film is not just images in motion; it is also the unfolding of a story, of a fascinating, arresting, moving, exciting story. Let me quote once more from Pudovkin. "In American films", as he puts it, but of course this was written in 1929, "the final section is constructed from the simultaneous rapid development of two actions, in which the outcome of one depends on the outcome of the other[,]... to create in the spectator a maximum tension of excitement... Will they be in time? Will they be in time?"⁴² Surely Panofsky's "series of visual sequences held together by an uninterrupted flow of movement in space",⁴³ as he defines film, is here punctuated with muscular contractions and relaxations; the road can rush towards us with threatening speed, or drag towards us as the characters in the film drag forwards; or again flow smoothly backwards, as seen from the rear window, as the pressure, indeed the pressure of time, eases.

There is a very clear analogy here between, on the one hand, the time-moving metaphor and film's moving road, and, on the other, the ego-moving metaphor and the spectator's perception of moving along in the film's environment. Is it just an analogy? I believe it is more than that, but the demonstration would stand in need of empirical – psychophysical – verification, involving the recording of motor reactions. My threefold hypothesis is: first, that there are identifiable, varying patterns of muscle tensions involved in perceiving, on film, the specific dynamics of, and obstacles on, the road passed, as well as in perceiving the specific dynamics of the smooth or delayed progress of the characters in the film; secondly, that there are identifiable, varying patterns of muscle tensions involved in thinking about time's welcome or depressing passage, as well as about our leisurely or frustrated progress in time; and thirdly, that significant correspondences can be established between these patterns of muscle tensions. Thinking of time as passing and seeing the road pass by on the screen, then, have the same motor background. And the perception of time passing is no more of an illusion than the perception of the road moving towards us, or receding behind us, on film. Our everyday metaphors of the flow of time are grounded in kinesthetic image schemata depicting reality.

That the passage of time is a physical force was a central idea of Bergson's, a philosopher James held in very high esteem, and whom Wittgenstein had an ambivalent relation to. "[I]f time is not a kind of force", Bergson wrote in his *Creative Evolution*, "why does the universe unfold its successive states with a velocity which, in regard to my consciousness, is a veritable absolute? Why with this particular velocity rather than any other? Why not with an infinite velocity? Why, in other words, is not everything given at once,

⁴⁰ *Ibid.*, p. 379.

⁴¹ *Ibid.*, p. 381.

⁴² Pudovkin, *op. cit.*, pp. 233 f.

⁴³ Panofsky, *op. cit.*, p. 20.

as on the film of the cinematograph?"⁴⁴ Bergson was the first philosopher to use the movie metaphor; what he tried to convey by it, however, was precisely that reality is *not* like a film, made up of static pictures. Our mind, for practical reasons, takes "snapshots ... of the passing reality",⁴⁵ Bergson wrote, but thereby transfigures it; there is, as he put it in *An Introduction to Metaphysics*, published in 1903, a deeper consciousness "we have of our own self in its continual flux", a consciousness of "motor habits" and "virtual actions".⁴⁶ As the author of the prefatory essay to the 1949 English edition of *An Introduction to Metaphysics* put it: "The intellect treats the world as though it were fundamentally static and immobile. ... the intellect is bound to misunderstand the fact of motion and change. Like a camera, it can only form a picture of a process by transforming the latter into a static image or series of images. ... Absolute reality as revealed by metaphysical intuition is the ever-rolling stream of time." What I have attempted to show in the present paper is that metaphysical intuition, supplemented by cognitive linguistics, psychology, and indeed the philosophy of film, might go a long way towards vindicating Bergson.

⁴⁴ Henri Bergson, *Creative Evolution* (1907), transl. Arthur Mitchell (1911), new ed. Mineola, NY: Dover Publications, 1998, p. 339.

⁴⁵ *Ibid.*, p. 306.

⁴⁶ Henri Bergson, *An Introduction to Metaphysics*, transl. by T. E. Hulme (1912), repr. by Hackett Publishing Company, Indianapolis, IN, 1999, pp. 49 f. and 25.