

This article was downloaded by:[Hatfield, Gary]  
[Hatfield, Gary]

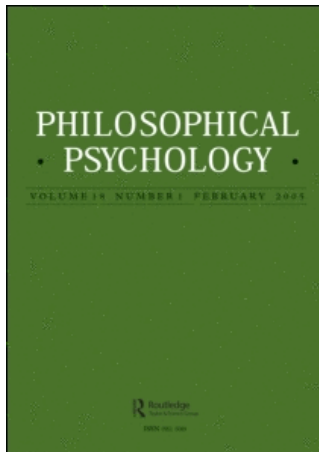
On: 13 July 2007

Access Details: [subscription number 780365995]

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954

Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Philosophical Psychology

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713441835>

### Did Descartes Have a Jamesian Theory of the Emotions?

Online Publication Date: 01 August 2007

To cite this Article: Hatfield, Gary , (2007) 'Did Descartes Have a Jamesian Theory of the Emotions?', *Philosophical Psychology*, 20:4, 413 - 440

To link to this article: DOI: 10.1080/09515080701422041

URL: <http://dx.doi.org/10.1080/09515080701422041>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article maybe used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

© Taylor and Francis 2007

# Did Descartes Have a Jamesian Theory of the Emotions?

Gary Hatfield

*René Descartes and William James had “body first” theories of the passions or emotions, according to which sensory stimulation causes a bodily response that then causes an emotion. Both held that this bodily response also causes an initial behavioral response (such as flight from a bear) without any cognitive intervention such as an “appraisal” of the object or situation. From here they differ. Descartes proposed that the initial processes that produce fear and running are entirely mechanical. Even human beings initially run from the bear as a result of physiological processes alone, without mental contribution. These physiological processes also cause a mental passion, which is a cognitive representation of the situation (as regards novelty, benefit, or harm), and which motivates the will to continue the behavior already in progress. According to James, emotions are caused by instinctive bodily responses that are triggered by noncognitive but nonetheless conscious perceptual states. Emotions are bare feelings of internal physiological stirrings that accompany an instinctual response that has evolved through Darwinian natural selection. Jamesian emotions initially have no motivational or cognitive content, which they subsequently acquire through learning. The methodological legitimacy of comparing these positions across the centuries is defended, and the two theories are compared to recent theories.*

*Keywords: Cognitive Theories of Emotion; René Descartes; Embodiment; Emotions; Evolution; Historical Methodology; Instinct; Mechanistic Theories of Behavior; Mind–Brain Relations; Passions; William James*

## 1. Introduction

William James contended that emotions are perceptions of bodily responses: An emotion just is our “feeling” of the “bodily changes” following upon the perception of an “exciting fact” (1890, vol. 2, p. 449). Descartes held that the body causes

---

Correspondence to: Gary Hatfield, Department of Philosophy, Logan Hall, University of Pennsylvania, Philadelphia, PA, 19104-6304, USA. Email: hatfield@phil.upenn.edu

“passions” in the mind, usually in response to an object or an event. According to Descartes, passions are “perceptions or sensations or emotions of the soul” that are “caused, maintained, and strengthened” by brain activity that both causes and reflects changes in the body (AT 11:349\*).<sup>1</sup>

Because Descartes and James both held that some emotions or passions arise as a consequence of bodily changes, their theories are sometimes classed together (editor F. Alquié, in Descartes, 1973, vol. 3, pp. 975–976, n. 1; Calhoun & Solomon, 1984, pp. 9, 20). There is something right about this classification: Both authors suggested that bodily events going beyond mere sensory stimulation precede and cause the experienced emotions and passions, i.e., both philosophers have “body first” theories. Such theories make the bodily response causally prior to the felt emotion, as in the famous example from James about fear and flight. Indeed, both authors denied that we start running *because we feel afraid*—although neither exactly held that we feel afraid *because we run*. They held that fear and flight are distinct causal products of a bodily system for producing situationally appropriate behaviors.

My purpose is to compare the theories of James and Descartes by focusing on the causal and functional structures that they assign to the emotions. While acknowledging the generic similarities just scouted, I argue that the two theories differ fundamentally. In James’ theory, a cognitive “appraisal” of the situation is *not* part of the original content of the emotions, whereas Descartes did assign innate cognitive content to the passions. Further, I claim that some similarities in their positions are frequently overlooked. First, both theorists distinguished between “primitive” (Descartes) or “standard” or “coarser” (James) emotions, which are body first responses, and higher “intellectual” (Descartes and James) or “cerebral” or “subtler” (James) emotions, which do not result from bodily perturbations (but Descartes did, and James did not, envision an exhaustive taxonomy of primitive emotions). Second, both distinguished between original emotions in the infant and developed or adult emotions that reflect past experience and learning and that may have complex cognitive factors as their triggers.

I have structured my inquiry as an answer to the question: Was Descartes’ theory of the passions or emotions Jamesian? One might protest that, on chronological grounds, Descartes’ theory can’t be Jamesian, while James’ theory could be Cartesian. While this is correct as regards any possible causal influence, it misses the point of why we make such retrospective comparisons. Some positions in the history of thought serve as benchmarks for the type of theory that they instantiate. James’ theory of emotion—or the “James–Lange” theory,<sup>2</sup> as it is often called—is one such benchmark. Presumably, that is because it is better known, more fully articulated, and therefore better understood than its precursors, and because it is deserving on grounds of originality by comparison with subsequent versions.

A comparative project such as the present one assumes some conceptual continuity and commonality of topic between the two theories. When the theories are separated historically by nearly 250 years, and involve distinct primary terminologies of “passions” and “emotions,” some scholars would question the advisability or indeed the very possibility of a meaningful comparison. Two sorts of concerns have

been raised. First, some historians of psychology (Danziger, 1997, p. 15; Smith, 2005) believe that there is virtually no useful continuity between the 17th century and the 19th century: James' works belong to the modern discipline of psychology, whereas Descartes' works are situated in a foreign cultural and intellectual climate. Danziger (1997, p. 37) finds a "vast conceptual gulf" separating Descartes' "passions" and later concepts of "emotion" or "motivation." Second, historians of science commonly caution against the dangers of "presentism" and "whig history" in the historical comparison of past theories with present ones. These dangers arise if one uses current concepts and theories as a privileged framework and then selectively describes or even distorts older theories to fit modern tastes, or to fit a false teleology in which the past exists only in order to produce the present.

The first objection carries its own presuppositions about psychology as a discipline, about the emotions in particular, and about the relations between terminological and conceptual diversity, to which I respond in §5. Regarding the second, the danger of retrospective distortion is real, but it can be avoided by reading past theories in their historical context and distinguishing the matter of what past authors said from that of whether what they said would be acceptable today. In any event, description of past theories using present day terms is inevitable (Hatfield, 2005a, pp. 103, 109) and is illuminating when done properly. Radner (2003) supports the legitimacy of using conceptual distinctions from a later period in analyzing Descartes' theory of the emotions.

I survey James' theory first, followed by Descartes' theory. My §4 compares their accounts of the relation between bodily responses and consciousness. I end with some reflections on the legitimacy of cross-century comparisons, followed by some comparative remarks on what is "cognitive," "noncognitive," and "embodied" in their theories.

## 2. James' Theory of Emotions as Feelings

James' (1884, 1890, ch. 23–26, 1894) theory of emotion is widely known for the seemingly paradoxical statement that we are "afraid because we run." In fact, in the celebrated passage from the *Principles of Psychology* that is the alleged source of this received view, James said that we are "afraid because we tremble" (2:450),<sup>3</sup> i.e., because of bodily reactions that occur in us at the sight of, e.g., a bear.<sup>4</sup> Some of these reactions may cause us to run, but such behaviors are not what we "feel" or "perceive" as emotions. The "emotional reaction" that we perceive as the emotion "usually terminates in the subject's own body" (2:442). Our perception of this bodily response "is" the emotion (2:449).

James' insistence that emotions are feelings of bodily events such as trembling, brow-furrowing, or accelerated heart rate is the key to his theory of emotions *per se*. Focusing on this aspect of the theory will allow us to understand what content James initially ascribes to emotions. At the same time, we need to consider his theory in a wider context in order to evaluate the conflicting interpretations that

it has inspired. Some interpreters ascribe to James a “cognitive” theory of the emotions, according to which emotions involve a cognitive “appraisal” of the body’s physiological response in light of the situation (Ellsworth, 1994, p. 223), or of the situation itself, e.g., as “dangerous” or “bad” (Demos, 1992, p. 212). Others contend that James renders emotions as noncognitive brute feelings, ignoring the functional role that emotional reactions play in guiding us to respond to “exciting” objects in adaptively useful ways (Damasio, 1994, p. 130; Gordon, 1987, p. 88). As it turns out, James does find a functional response in the causal complex that produces an emotion, but he does not ascribe to *original* emotions the role of initiating that response: The response arises by instinct. Further, James allowed that habit and cognition do play a role in triggering and modulating *developed* emotions. James’ theory of original and developed emotions is built upon his theory of original and modified instincts, which we must therefore examine.

James placed the emotions within a generic group of phenomena that result in “the production of movement” (ch. 23). The movements in question are consequent upon feeling. James held “that every possible feeling produces a movement, and that the movement is a movement of the entire organism, and each and all of its parts” (2:372). In his view, the brain events attendant upon feelings spread their effects through the nervous system to the entire body, or at least to various parts of it. The primary initiators of such feelings are sense impressions. A “sensorial stimulus” provokes a “cerebro-mental change,” which in turn affects blood circulation, respiration, the sweat glands, viscera, and the voluntary muscles, yielding three classes of movements:

1. Instinctive or Impulsive Performances;
2. Expression of Emotion; and
3. Voluntary Deeds. (2:382)

Each class of movement results from an initial feeling: A sensory perception or the imagining of a sensory object. (James defines ‘object’ broadly, to include environmental circumstances, 1884, p. 191, 1:275, or “situations,” 1894, p. 518.) The term ‘emotional expression’ as used here is not restricted to the outward expression of our feelings by facial expressions and blushing; it applies to the “expression” in the body of changes in response to stimulation, whether these bodily changes are outwardly observable or not (heart rate as well as scowling). If the subject perceives such outward signs or other ensuing behavior, that perception counts as a further feeling, beyond the emotion. I will first focus, as did James, on the initial three-step sequence of sense perception, “cerebro-mental” (i.e., central brain) change, and its “more important” consequences: Instinctive or impulsive behavior, emotions, and voluntary behavior. For James, instincts and emotions are “primary”: They originally arise from innate neural mechanisms (2:384, 442). Voluntary behavior arises from a desire to achieve an end and is therefore “secondary”: We must have previous experience before we acquire a stock of desirable and hence foreseeable outcomes (2:486–488). These empirically developed secondary effects play a role in the developed emotions.

James accorded a large role to instincts and impulses in initially producing adaptive behaviors in response to determinate stimuli. The behaviors are adaptive because they yield results that tend toward the preservation of the animal. They are instinctive or impulsive because they serve that end without the animal's being aware of it; the behaviors are automatic and (initially) unguided. James acknowledges that "conduct" or behavior is minutely adapted to environments (2:384), in accordance with Darwinian natural selection (2:678–688). In his view, such behavioral adaptations have not been cognitively mediated either by a designing agent or by individual animals who "pass on" the results of their insight through Lamarckian inheritance of acquired characteristics (2:678–683). James envisioned a process of Darwinian natural selection among "accidental" variations (2:683–688). Thus, if an animal exhibited a heritable tendency toward an adaptive behavior to a specific stimulus, it and its offspring would be comparatively advantaged in relation to conspecifics that lack that instinctive response. An advantageous, heritable stimulus–response sequence would propagate through later generations as a consequence of natural selection, without a cognitive basis or any initial cognitive guidance.

James cited a standard definition of instinct "as the faculty of acting in such a way as to produce certain ends, without foresight of the ends, and without previous education in the performance" (2:383; on "instinct" circa 1900, see Baldwin, Stout, & Lloyd Morgan, 1901–1905). Instincts have an innate basis that may be present at birth or arise as part of a developmental sequence. Instinctive responses are provoked by "determinate sensory stimuli in contact with the animal's body, or at a distance in his environment" (2:384). James described a broad range of instinctive behaviors. The cat's chasing the mouse and its fleeing the dog are instinctive. The lion who *seeks* prey when hungry, *stalks* prey when seen, *springs* when near, and *devours* what it has caught does so instinctively and impulsively (2:385). Human babies have the instincts of sucking, biting, clasping, crying, sitting up, standing, crawling, and walking, among others (2:403–405).

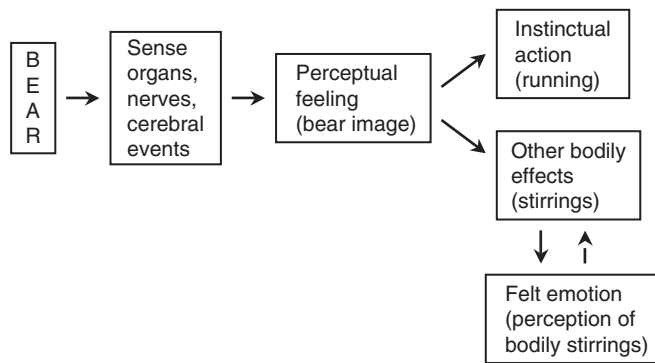
Instincts are "impulses" toward specific behaviors in the face of specific stimuli. James classifies instinctive responses under "the general reflex type" (2:384). He defines "reflex" more broadly than has become normal: Reflexes include not only narrow closed-loop phenomena such as knee-jerks but also innate as well as habitual (hence learned) behaviors that occur "automatically," without conscious guidance (1:12–13, 116), as the result of a broader neural loop (running through the cerebral cortex). When we learn habitual behaviors by consciously guiding our practice (e.g., as in learning to play a piece of music), he classifies the resulting automatic actions as "semi-reflex" (1:13). Although the initial perceptions of instinct-triggering stimuli are "feelings" rather than thoughts (1:221–222), the associative processes of experience subsequently add content to such sensations (2:76–79), including cognitive content that classifies or identifies the stimulus (e.g., as a bear). Such associated content is not available for our original instinctual reflexes, but may later (in the developed emotions) serve as automatic or impulsive (hence reflexive) triggers for behaviors and feelings that originally were bare instinctive responses.

James insists that instincts “are not always blind or invariable” (2:389). They are not always blind—i.e., devoid of means–end foresight—because once an instinctive response has occurred in “animals with memory” (2:390), the animal can remember and anticipate it, and may even make preparations suitable for it to occur or to avoid its occurring. Consciousness plays a role in this process by functioning to place an animal’s behavior into a means–ends cognitive framework (1:141). A *first* occurrence of the instinct is without means–end cognition, but, through the mediation of memory and conscious representation of ends, *subsequent* instances need not be. Moreover, instincts can be shaped by habit. Chicks newly hatched after artificial incubation will learn to follow a duck or a human being, and they will continue to do so even after they first see a hen (2:396). Their original attachment becomes habitual, and they don’t similarly attach to other moving objects that they subsequently encounter. If, on hatching, they are kept blindfolded with hoods for several days, they may lose the impulse for such an attachment. Further, instincts are transitory: A child may have an instinctual tendency toward play at a certain developmental stage, and lose it later. In fact, James speculates that “most instincts are implanted for the sake of giving rise to habits” (2:402). Such habits may be subject to conscious adjustment, at least in human beings. The instinct’s function is to initiate the habit, after which the instinct fades; if no opportunity is found for the instinct to fix the habit, as with a caged squirrel who tries unsuccessfully to bury its food, then the instinct may fade without trace (2:400). Finally, instincts may generalize from the historical triggers that fixed them through natural selection to novel situations: An instinctive response that arose as a bare animal response to our conspecifics may be naturally and reflexively evoked in highly conventional social settings, as when stage-fright arises on the occasion of giving a professional talk (1884, p. 195).

In his discussion of human instincts, James included several that involve emotional responses: Pugnacity, anger, ferocity, and fear (2:409–421). We may have a combative response to our fellows and also feel angry; we may naturally withdraw from some sights and feel fear. As noted, James famously held that we don’t withdraw because of the feeling: We perceive something, we withdraw, and we feel fear. The instinctive reaction (a behavior) and the emotional response (a feeling) are distinct aspects of a single complex process:

In speaking of the instincts it has been impossible to keep them separate from the emotional excitements which go with them. Objects of rage, love, fear, etc., not only prompt a man to outward deeds, but provoke characteristic alterations in his attitude and visage, and affect his breathing, circulation, and other organic functions in specific ways. When the outward deeds are inhibited, these latter emotional expressions still remain, and we read the anger in the face, though the blow may not be struck, and the fear betrays itself in voice and color, though one may suppress all other sign. *Instinctive reactions and emotional expressions thus shade imperceptibly into one another. Every object that excites an instinct excites an emotion as well.* Emotions, however, fall short of instincts, in that the emotional reaction usually terminates in the subject’s own body, while the instinctive reaction is apt to go farther and enter into practical relations with the exciting object. (2:442)





**Figure 1.** Emotional arousal, according to James. The solid arrows show causal relations. The felt emotion is a “cerebro-mental” event that is caused by bodily changes and that constitutes a perception of those changes. The dashed arrow indicates this perceptual relation.

Discounting James’ tendency to speak in terms of tendencies (“usually,” “is apt to”), this passage implies that inasmuch as an instinctive response to an object yields a behavioral response toward the object, it is an instinct, and inasmuch as it leads to bodily changes (“emotional expressions”) that are felt, it is an emotion.

The core of James’ theory “is that *the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur IS the emotion*” (2:449). The fear instinct causes us to withdraw, and, along with that outward behavior, we respond physiologically to the frightful object, and we feel that internal physiological response as fear. This feeling is the emotion proper. The “fear behavior” is not caused by the emotion of fear nor does it cause that emotion; indeed, the behavior need not occur for the emotion to be felt (contrary to LeDoux’s interpretation, 1996, p. 50). The processes that produce the bodily effects that are felt as the emotion of fear may (or may not) also cause a behavioral response (see Figure 1). The original content of the feeling is the bodily changes themselves: For fear, a quickened heart, shallow breathing, trembling lips, weakened limbs, goose bumps, and “visceral stirrings” (2:452).

In James’ theory, we are hardwired to respond to certain perceptions, such as the perception of the bear, with flight and fear. As he summarized the theory in 1884, “emotion is nothing but the feeling of the reflex bodily effects of what we call its ‘object,’ effects due to the connate adaptation of the nervous system to that object” (p. 194). Because instinctual and emotional responses are bare neural reflexes to a sensory object, no perceived threat to our survival and no means–ends reasoning about such a threat is implicit or explicit in those responses. Nonetheless, the response may serve our survival, and may have been evolutionarily fixed in our ancestors for that reason. It is a central point in James’ account of instincts and emotions that they do not involve any initial awareness or consideration of threats and benefits (2:383–385). More generally, this means that, in James’ theory, objects



initially are “exciting” because they provoke a response (instilled by evolution); they do not provoke a response because they are initially perceived as “exciting.”

Accordingly, James’ theory of our original emotions may rightly be classified as noncognitive, and in two senses. First, although emotional responses are caused by sensory perceptions (via bodily responses to the sensory stimuli), James describes these perceptions as *feelings* rather than as *thoughts* (1:221–222). The original triggering perceptions are not cognitive classifications of a bear as a bear: They are “feelings” or sense perceptions of bear-shapes and bear-motions; those shapes and motions naturally make us run and tremble as a result of a “connate adaptation.” Second, the emotion itself, as a bare perception of internal perturbations, is not an appraisal or a cognitive response to these bodily states or their causes, but is another feeling. This point is the main brief of James’ oft repeated phenomenological argument that, if we subtract the perception of bodily perturbations from the content of an emotion, “we find we have nothing left behind” (2:451). However, although emotions originally involve no appraisals, we may come to appraise our emotions, we may come to feel fear as a result of detecting a bear cognitively through evidence that would not trigger our original bear fear-reflex, and we may come to view the emotion of fear as a sign that we are in danger. In James’ view, these are subsequent cognitive developments, which allow emotional responses to take on cognitive meaning and to be triggered by cognitive appraisals.

As bare perceptions of bodily changes, Jamesian emotions are not themselves original motivators (see Vallelonga, 1992, p. 223). James not only denies that we run because we are afraid but he also denies that the fear, as felt, originally plays a role in motivating us to flee. James allows that pleasure and pain are original motivators and guides to action (1:143), but he does not believe they are the only ones, nor does he find that the objects that cause emotions originally move us through pleasure and pain (2:549–550). Rather, some objects naturally goad us to angry behavior and to feelings of anger. They instinctively move us, without present pleasure or pain or any foresight of potential pleasures or pains. As we have seen, the same process that produces anger-behavior (such as striking a blow) also produces the feeling of anger. The feeling does not motivate the blow; we are moved to the blow by a reflex action that precedes the feeling (2:550–552). Emotions are just feelings for James; they originally have no evaluative or motivational content.<sup>5</sup>

Thus far, I have focused on James’ account of basic instinctual and emotional responses, those he calls the “standard” (1884, p. 189) or the “coarser” (2:449) emotions. In so doing, I left aside the “subtler” emotions (2:468–472), such as the emotional response to music or to a piece of good scholarship. James contends that some “higher” emotions are founded upon sensory perceptions alone (as in music), without any further bodily perturbations. These are pure aesthetic feelings that arise from a “cerebral” appreciation of a thing, which is an “intellectual emotion, if such it can be called” (2:471). James wonders whether such “cold” appreciation really is an emotion. In any case, he believes that commonly, as in popular or “romantic” responses to music, the initial sensory perceptions give rise to “secondary” emotional

reactions based on association, which are standard (“coarse”) emotions constituted by feelings of bodily excitations (2:469–471).

I have mentioned the developed emotions, which engage cognitive factors. Habit formation and cognitive development can shape the triggers for both instincts and emotions (2:411, 414–415, 433, 437, 466, 470). James contends that “any theory of emotion” must recognize that an object may, as a result of experience, become associated with a different emotional response than before (1894, p. 518). We may link our instinctual responses of fear or anger to objects that don’t originally evoke them. In a complex emotion, such as fear of the supernatural, a sequence of events that “baffles” our expectations may evoke the fear of an invisible presence; the perception that events violate an expected norm is an “intellectual” element (2:419), a cognitive appraisal that comes to trigger an emotion. If we are angered by a perceived professional slight, the perception of the slight must include an appraisal and hence a cognitive element that has become associated with a trigger for pugnacious anger. Further, since emotions arise from instincts and instincts may lead to habits that individuals can purposefully shape, our emotional triggers are subject to such shaping, so that we can wean ourselves from objects that instinctually provoke fear or anger.

Developed emotions may take on a motivational aspect. If we like the way that love feels, we may seek objects that we foresee will evoke the love response. If we are pugnacious sorts, we may find that anger is associated with effective ferocity, and therefore seek to trigger our anger response in situations that we recognize as likely to provoke our pugnacious behavioral tendencies (2:553). The fact that we are afraid of an approaching animal may become a learned signal that we are in danger, as in Damasio’s (1994, ch. 8) “somatic marker” hypothesis. Contrary to Damasio (1994, pp. 130–139), James’ theory accommodates so-called “secondary” or “adult” emotions (see also Barbalet, 1999). But this fact does not change James’ basic account, which is that emotions originally are noncognitive and nonmotivating feelings that arise from evolutionarily instilled adaptive reflexes.

Finally, we should note James’ attitude toward taxonomies of the emotions. Contrary to some recent authors who also see an evolutionary background to the emotions, James did not seek to discern a list of “basic emotions” that exhaust all emotional phenomena (Ekman, 1992) or that serve as elements from which all other emotions are derived (Plutchik, 1980). James believed that emotions typically arise from a cocktail of instinctive cerebromotor reflexes. Taking into account the effects of innate individual differences and learned associations on what triggers a reflex and how it plays out, “we immediately see why there is no limit to the number of possible different emotions which may exist, and why the emotions of different individuals may vary indefinitely” (2:454). The search for a fixed taxonomy is quixotic: “*any classification of the emotions is seen to be as true and as ‘natural’ as any other, if only it serves some purpose*” (2:454). Which does not mean that James believed there are no systematic differences among emotional responses nor any similarities that may be grouped together under headings such as “fear” or “anger”: Those and other standard labels serve nicely for James’ purpose. But James considers knowledge of

causes to be a more advanced form of scientific knowledge than mere classification and description. His causal theory that emotions typically arise from a complex of reflexes, plus his view that reflexes vary “indefinitely” when considered individually and developmentally, led him to extend the conclusion that nothing is “eternally fixed” in reflex action to the attendant emotions. Instead of taxonomic questions, he invites investigators to focus on characterizing the physiological reactions aroused by various objects in various individuals, and to investigate the evolutionary process by which the various reflex responses have arisen (2:477–485), pragmatically adopting such taxonomic labels as are needed for the task at hand.

### 3. Descartes’ Theory of Passions as Perceptions

Descartes engaged the emotions and passions from his earliest writings (AT 10:217) to his last published book (1649/1989). Like James, he distinguished body caused emotions, which he called “passions,” from purely intellectual emotions, such as the intellectual joy that may arise from the fact that a play has affected us (even a sad play), or an intellectual love of God (AT 4:601–610, 11:397, 441, a. 91, 147).<sup>6</sup> He differed from James in his theory of mind (see §4); for example, he held that intellectual emotions arise in an immaterial mind that (in this instance) operates independently of the brain. Again like James, Descartes focused on body caused emotions in his theoretical accounts, and for that reason I set aside the intellectual emotions and focus on Descartes’ “passions,” which correspond to James’ “coarser” emotions. Because Descartes considered human passions to be perceptions caused by complex physiological processes that act upon the mind, his theory is best understood in relation to his larger program in animal physiology, as first described in the *Treatise on Man* (first written in 1630–1633, subsequently revised, and published posthumously in 1664), continued in the *Description of the Human Body* (written in 1647–1648 and published in 1664), and summarized in the First Part of the *Passions of the Soul* (1649/1989).

Although Descartes’ physiology incorporated Galenic physiological ideas, its mechanistic character marked a sharp break with the Aristotelian animism that was found in both Galenism and the scholastic Aristotelianism of Descartes’ day (Hatfield, 1992). In his physiological program, he sought to explain through purely material processes many animal functions that the Aristotelians had explained by appealing to a “soul.” In his view, only human beings possess souls (which affords them consciousness and thought); nonhuman animals are mere machines (6:46, 55–59).

The Aristotelian concept of *psyche*, *anima*, or soul extended to both vital and psychological functions, including nutrition, reproduction, animal motion, sensation, and various grades of cognition. Aristotelian accounts ascribed vital functions to a vegetative power of the soul; sensory, motor, and low-level cognitive functions to a sensitive power; and intellectual and rational functions to a rational power (see Michael, 2000). Descartes sought to show that in nonhuman animals he could,

through mechanical physiological processes alone, explain not only all vital, sensory, and motor functions but also some low-level cognitive functions. In denying vegetative and sensitive souls to all animals (AT 11:202), he accepted the task of providing physiological mechanisms to account for all animal behavior, including behaviors that the Aristotelians counted as low-level cognitive achievements of the sensitive power of the soul (AT 7:230, 427). Human beings differ from other animals in possessing an immaterial soul. Because Descartes held that consciousness supervenes on the intellectual power of this soul (AT 7:78, 8A:17), he denied sentience to animals (AT 3:85; Hatfield, in press). At the same time, he ascribed to human and nonhuman animals a common set of physiological mechanisms that operate in clockwork fashion (AT 11:202), and he maintained that these mechanisms account for much of human behavior (AT 7:229–230). They also provide the causal basis for the passions.

Descartes held that “passions” are properly so called because they are passively caused in the mind through the action of the body.<sup>7</sup> When so defined, the “passions” include sense perceptions (which we “refer to” external objects, AT 11:346, a. 23), internal sensations such as hunger and thirst (which we “refer to” the body, AT 11:346, a. 24), and passions of the soul (which we “refer to” the soul itself, AT 11:347, a. 25). I term the passions of the soul the *passions proper*. They are feelings that the self recognizes as its own, in contrast to feelings that seem to arise from and report on external bodies or the state of the self’s own body. Descartes defines the passions proper as “perceptions or sensations or emotions of the soul that we refer particularly to it and that are caused, maintained, and strengthened by some movements of the spirits” (AT 11:349\*). He explains that the passions proper are *perceptions*, not volitions; that they are *sensations* because we receive them passively and because, like sense perceptions, they are “obscure and confused” (in his technical sense); and that they are *emotions* in the sense of excitations or disturbances in the soul. The “spirits” in question are “animal spirits,” the name that Descartes used for the subtle fluid matter that was the workhorse of brain function in his hydraulic physiological scheme—a scheme in which the flowing of animal spirits through brain cavities and neural tubes underlies both sensory and motor functions.<sup>8</sup>

The passions are caused by a flow of animal spirits that also causes the body to respond to the situation. In one example, Descartes speaks of an unnamed frightful animal, which we can imagine to be a bear. Like James, he contends that purely physiological processes, without mental intervention, can make us run from the bear. The animal spirits (brain processes) that cause us to feel fear also affect “the nerves that move the legs to flee,” and these processes that cause flight can be “excited in the body merely by the disposition of the organs without the soul contributing to it” (AT 11:358, a. 38), i.e., without any mental intervention. These brain processes may be the result of instinct (AT 11:192–193), or of prior encounters with the animal that have left their effects in the brain (11:177–185). As with James, Descartes suggests that a reflexive<sup>9</sup> or automatic bodily mechanism directs an individual human being to flee, just as the sheep naturally flees the wolf (AT 7:230). Again as with James, we are

not afraid because we run, but rather our fear is a further product of the same physiological processes that make us run.

Although Descartes' body-first account of the passions is similar to James' theory in some respects, it differs fundamentally. James held that the passion itself is a perception of the state of the body, and he denied that the passion or emotion (prior to cognitive development) motivates the person to run. Descartes diverges on both scores. He contrasts the passions with internal sensations, which *are* perceptions of the state of the body. Further, although bodily conditions cause the passions, the passions are not *perceptions* of those internal conditions. As was standard in his day, Descartes distinguished the passion proper from further bodily effects that may accompany it, including both external signs such as blushing, groans, or sighs (AT 11:411, a. 112) and internal responses such as warmth around the heart (AT 11:402, a. 97). We feel this warmth, but our perception of it is not part of the passion, by contrast with James.

Cartesian passions have the further effect of enjoining the will to go along with what the body is already doing. Descartes explains this point in describing the "use" of the passions:

the use of all the passions consists in this alone: They dispose the soul to will the things nature tells us are useful and to persist in this volition, just as the same agitation of the spirits that usually causes them disposes the body to the movements conducive to the execution of those things. (AT 11:372, a. 52)

This passage places both the bodily response and the passion itself in a functional context. They both are aimed at bodily preservation. Lacking Darwin's theory of natural selection, Descartes ascribes the origin of this functionality to what he elsewhere terms "the teachings of nature": Naturally instituted arrangements of bodily structures and of the rules of mind-body interaction that tend toward the well-being of the body (AT 7:89; 11:331, a. 6). These arrangements include not only the bodily mechanism that makes us flee the bear but also the fact that the feeling of fear inclines us to keep running. Given Descartes' account of the will as naturally drawn to the good (AT 1:366, 7:58, 166), this means that the passions must present running as a good thing, or the bear as a bad thing, or both (AT 11:393, a. 87).

The passions are not blind feelings, according to Descartes; rather, they are "obscure and confused" perceptions that incline the will toward a situationally appropriate behavior of the sort that the body has already undertaken. Descartes tells us that for all perceptions, including the passions, the soul "always receives them from the things that are represented by them" (AT 11:343\*, a. 17). This raises the question of the objects of the passions: What do the passions represent? Or, more specifically: What do they represent "obscurely and confusedly"?

Some initial candidates for the objects of the passions in general include: The brain states that cause them, the external objects that cause them, and the soul itself, to which we refer them. We can rule out brain states: While they are the "last and most proximate cause" of the passions, it makes no sense to say that such states are the *objects* of the passions. If that made sense, we might also say that the objects of

external and internal perceptions are the brain states that cause those perceptions, but that assertion contradicts Descartes' discussions of external and internal perception (AT 7:79–80, 87–88, 11:346, a. 23). Similarly, we can rule out external objects as the *primary* objects of the passions, on two grounds. First, Descartes explicitly contrasts passions proper with external perceptions, saying only of the latter that we “refer” them to external objects (AT 11:346, a. 23). Second, while Descartes allows that external objects cause many of our passions, they do not cause all of them: Sometimes, we may feel joyful or sad for no apparent reason (AT 11:371–372, a. 51). Hence, passions do not require an external object as their primary object, although external objects can be *secondary* objects of the passions (as I will discuss shortly). Finally, it seems unlikely that the passions are obscure and confused perceptions of the state of the soul itself, for while they are “referred to” the soul (AT 11:347, a. 25), this seems to be a point of phenomenology: We find that *we* are sad, and the soul as self is posited as the locus of the sadness.<sup>10</sup> Moreover, the function of the passions is not to report on the state of the soul but to induce the soul to will things that nature tells us are “useful.” Which means that the passions obscurely and confusedly represent the situation in a way that moves the will to a definite action: Away from something, toward something, to maintain something, or the like.

In the *Passions*, Descartes repeats several times that the passions induce us to will what is “useful.” By this, he means that the passions move the will to respond appropriately to things that are beneficial, harmful, or important to us (AT 11:372, a. 52). He doesn't directly say beneficial, harmful, or important *for what*. But his examples make it clear that the passions are concerned to induce states of mind that are useful for the body or the mind–body complex: Fleeing the beast, priming the body for action to obtain desires (11:406, a. 106), and attending to novel objects (11:384, a. 75). This conception accords with his view, as expressed in the *Treatise*, of the function of certain physiological processes that occur in both human and nonhuman animals and that cause the passions in human beings: These processes prepare the body for executing “external movements that serve either in the pursuit of desirable things or in the avoidance of injurious ones” (AT 11:193). In nonhuman animals, these external movements occur without felt passions, and they tend toward the preservation of the animal body. In human beings, physiological processes that are causally prior to the passions also produce external movements that tend toward the preservation of the body and hence of the mind–body complex.<sup>11</sup>

Appealing to these considerations, I propose that the Cartesian passions represent the mind–body complex as being in any one of various situations that are potentially beneficial, harmful, or otherwise important to it. Descartes offers a typology of such situations with his list of six primitive passions: Wonder, love, hatred, desire, joy, and sadness (AT 11:380, a. 69). He suggests that we can understand these passions by investigating “in how many different ways that are important to us our senses can be moved by their objects” (AT 11:372, a. 52). Although the passions need not be focused on a specific object, when investigating their content he uses cases in which they are so directed. The passions represent only three generic types of situation: wonder represents a novel situation, and the other five passions (love, hatred, desire,



joy, and sadness) represent either beneficial or harmful situations. Individual sensory objects are primary objects of sense perceptions and only secondary objects of the passions. The primary objects of the passions are the beneficial, harmful, or important aspects of a situation in relation to our bodies and mind–body complexes.

To see how this works, let us consider first wonder, then desire. Wonder is a passion “caused first by the impression in one’s brain that represents the object as rare and consequently worthy of being accorded great consideration, and then by the motion of spirits disposed by this impression to advance with great force upon the place in the brain where it is, to strengthen and preserve it there” and to keep the sense organs fixed upon the object causing the brain impression (AT 11:380–381, a. 70). In accordance with his body-first doctrine, the “representation” of the object as rare or unusual results from a brain process alone (presumably mediated by the corporeal memory),<sup>12</sup> and the feature of the brain impression that provides the mark of novelty also causes the spirits to flow to that brain site so as to preserve the impression and to keep the sense organs directed on the object; the attendant feeling of wonder (the passion proper) serves to make the will fix the mind (the “understanding”) in a state of “attention and reflection” (AT 11:384, a. 75). The senses present an object; the brain processes mark this object as novel; the novelty is the primary object of the passion; the object of the senses is the secondary object of the passion and hence the focus of the feeling of wonder; and the passion draws the will toward continuing what the body is doing by focusing not only the sense organs but also the mind’s attention.

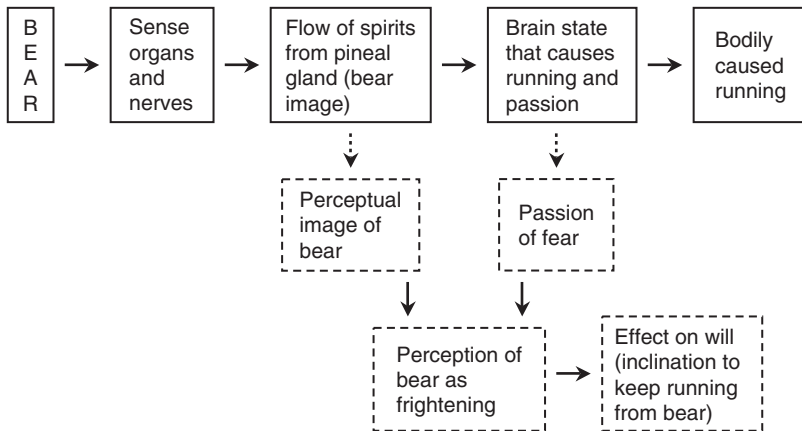
In the case of desire, the spirits may cause the soul to want to retain something that is good for the body or the mind–body complex. The spirits must first respond, just as they do in nonhuman animals, to the presence of a “desirable” object (e.g., food), and this same flowing of spirits then causes a passion that makes us want to retain or secure a present good. In the usual causal sequence, the senses present an object; the brain processes respond to it as beneficial for the body (hence as desirable); the presence of a good to be attained or preserved is the object of the passion; the object of the senses (the food) is the secondary object of the passions and hence the focus of the desire; and the passion draws the will toward acquiring the food.

In this way, the passion of wonder or of desire focuses on a sensory object, we perceive the object under the aspect of “novel” or of “desirable,” and the interwoven perception and passion guide the will in instigating attention to the object or action toward it (see Figure 2).

Descartes shares with James the body-first approach, and he attributes to bodily processes the ability to respond to sensory stimuli in a situationally appropriate manner. In contrast with James, he regards the passion itself as representing the character of the situation (its novelty, its benefit, or its harm) under a motivational aspect. The passion has a cognitive content, in virtue of which it motivates the will to fix attention on an object (as wonder does), or to approach or avoid or to maintain or abandon the object (as do desire, love and joy, and hatred and sadness).

Like James, Descartes recognized complexity and development in the passions. The six primitive passions interact with varying circumstances and with each other





**Figure 2.** Passion of fear caused by a bear, according to Descartes. The solid arrows indicate causal relations within a single domain: body–body causation, or causal relations between mental states. The dotted arrows indicate body–mind interaction, and the dashed boxes are mental states.

to form all the other passions. Some of these, such as esteem, scorn, generosity, pride, and humility (all species of wonder) may have cognitive triggers involving developed mental attitudes toward others or one’s self (AT 11:373–374, a. 54). Descartes does not here contradict his bodily mediated causal scheme: In these cases, the mental attitudes cause a flow of spirits that then causes the passion (e.g., AT 11:443–445, a. 149–151). One important passion, generosity, has a mental virtue as its counterpart. The mental virtue of generosity concerns free will and the resolve to use it well; it depends on thought alone and is not a passion. The passion of generosity, which is produced by a flow of spirits, influences the will as passions do (AT 11:445–454, a. 153–161). As might be suspected, the psychology of such passions, their interactions, and their development in adults, is complex (S. James, 1997, ch. 11). Nonetheless, in each case that a thought triggers a passion, it must do so by influencing the body, in accordance with the body-first doctrine.

#### 4. Descartes and James on Bodily Responses and Consciousness

Descartes and James both held body-first theories of the emotions, but they differed in their conceptions of what the emotions are and also in what the body by itself can do. In this section, I shall argue that although both authors gave a significant role to nonconscious bodily mechanisms in responding to adaptively relevant environmental situations, Descartes (contrary to Damasio, 1994) attributed a greater psychological role to nonconscious physiological mechanisms than did James. Further, James’ attitude toward the role of nonconscious mechanisms was influenced by his theory that cognitive classifications arise by learning rather than

through evolution. James rejected the innate cognitive content that Descartes attributed to the passions. In the subsequent section, I shall compare their respectively cognitive and noncognitive theories with more recent theories.

Descartes' conception of the strong role of physiological mechanisms in producing adaptive behavior shaped the attitude of James and his contemporaries toward the capacities of the nervous system. Descartes' claim that all animal and many human behaviors arise from mechanistic physiological processes was widely discussed in the 17th and 18th centuries (Rosenfield, 1940; Sutton, 1998; Vartanian, 1953);<sup>13</sup> Huxley (1884), among others, appreciated it in the 19th. Whether nervous mechanisms alone—acting as a closed causal system without any genuine contribution from consciousness—could account for all animal and human behavior was widely discussed in James' day (1890, ch. 5). James acknowledges Descartes' contribution: "To Descartes belongs the credit of having first been bold enough to conceive of a completely self-sufficing nervous mechanism which should be able to perform complicated and apparently intelligent acts" (1:130). But he rejects out of hand the Cartesian theory that nonhuman animals entirely lack consciousness. He agrees with Descartes that consciousness figures in the guidance and hence causation of human behavior, but extends such consciousness to nonhuman animals. Yet he rejects substance dualism in favor of an "empirical parallelism" (1:182) between the mental and physical. In the *Principles*, he did not delve deeply into the metaphysics of the mind–body relation, but he did record his firm opposition to several prominent types of theory: Mind-denying physicalism, substance dualism, monadic theories, and epiphenomenalism (1:24n, ch. 5–6). (James, 1904, subsequently adopted a neutral monism that constructed both the mental and the physical out of perception-like entities akin to sense-data; see Hatfield, 2002b, 2004).

James' parallelism between physiological processes and conscious perceptions can help us understand some differences between his and Descartes' theories. Descartes drew a strict divide between conscious mental processes and material physiological processes. Because the processes that initially lead the (human or nonhuman) animal to run from the bear are purely material, the sensory image of the bear in the brain causes running without conscious mediation, i.e., "without the soul contributing" (AT 11:358, a. 38). In human beings, the brain image of the bear also causes a conscious perception. The mental perception of the bear and the feeling of fear are subsequent effects of the bodily processes and may themselves have their own causal effects (e.g., the mind might intervene to alter the course of flight).

James, by contrast, held that the original instinctual processes that lead to flight, and the internal stirrings that yield the emotion, start with an initial perceptual feeling. This feeling is part of the stream of consciousness. It is not a cognitive act but is rather what James calls "knowledge of acquaintance" (1:221). Such a mental state acquaints us with a thing, but it doesn't tell us anything *about* it (such as we come to know when we classify the thing and gain knowledge of its characteristic effects). It is a "feeling," not a "thought" (1:222). Among such feelings, James included both the initial sensory state and the subsequent emotions (1:222, 2:1–3). When a sensory stimulus initially causes a change in the cerebral nervous system, this change is

a “cerebro-mental” event (2:382): A brain event that has a conscious sensation as its natural concomitant. The brain events that yield both initial sense perceptions and emotional feelings are of the type that carry a conscious sensation in parallel.

According to James (1890, ch. 5), conscious thought is characterized by means–ends directedness that guides both mental activity and behavior. A conscious being is a “fighter for ends” (1:141). But James denies intrinsic means–ends directedness to the conscious perceptions that initially trigger instincts and emotions and also to the original instincts and emotions themselves. James excludes means–ends directedness from instincts because he regards them as reflexive and as products of unguided evolution. Consciousness of the *de facto* contribution of reflexive behaviors to the organism’s survival first arises in the thought of the organism through experience and reflection (1:140–141)—and ultimately occurs to the Darwinizing theorist. James also held that the initiating perceptions and the subsequent emotions are mere perceptions, devoid of thought, lacking means–ends awareness, and possessing no motivational power. The work of getting the animal to run initially is instinctual and reflexive according to James, as it is for Descartes.

The fact that the instigating perception is conscious allows it to enter directly into cognitive development. According to James, consciousness is “an organ added for the sake of steering a nervous system grown too complex to regulate itself” (1:144). His calling consciousness an “organ” places it in a biological or functional context. Without claiming to explain how consciousness actually evolved, he suggests that the internal structure of consciousness, including basic axioms of thought, might have arisen through Darwinian evolution (2:629). Consciousness “steers” the emotions by seeking and finding their connections with means and ends. It may come to evaluations and insights about a situation that associatively supplement subsequent perceptions. Although our original perception of a bear does not signal danger, our subsequent perceptions may do so, once we have established cognitive (associative) connections between bear-images and other thoughts (bear-classifications, danger-ideas, etc.). Similarly, after its first time encountering a bear, an animal “with memory” will foresee that it will have an impulse to run from the bear, and may understand that it does so because the bear is dangerous.

For James, the fact that the emotion-causing perception, the emotion itself, and any attendant behavior are present in consciousness makes them more readily associable, cognizable, and directable. The initial presence to consciousness of the perception of the bear renders that perception available to operations of thought that can connect it with other perceptions, memories, and knowledge in accordance with the means–ends structure of consciousness (1:140–141). James did not, however, allow evolution to determine our perceptual content according to categories of thought, so that we would innately perceive objects as dangerous or as interesting in some other way. Although allowing natural selection to operate on stimulus–response pairings, he considered it a tenet of naïve Spencerism to suppose that “cerebro-mental” structures having conceptual or classificatory content evolve (2:629–630). Instead, he viewed our cognitive tendency to classify as an adaptation that operates on the objects of experience (2:646–647) to fashion classifications

in accordance with our pragmatic interests (2:632). He assigned the development of conceptualization to learning and restricted evolutionary influence to the learning mechanism. He thus differs from many psychoevolutionary theorists today, who allow the evolution of concepts and of the cognitive appraisals posited in their theories of the emotions (see §5 below).

James' unwillingness to allow the instinctual system to contribute directly evaluative or conceptual content to perception coheres with his ascribing less behavioral flexibility to *nonconscious* automata than had Descartes. James allowed that some habits are formed without conscious direction but held that habit-formation always requires "consciousness of some kind," if only sensations to which we are "usually inattentive" (1:118). In Descartes' scheme, nonconscious physiological mechanisms guide not only instinctive behaviors but much learned behavior as well. Descartes gave the nonconscious automata or "machines" that he described in the *Treatise* the ability to form associative connections in corporeal (brain) memory. Such connections allow an animal's behavior to be adjusted to past patterns of sensory stimulation, in the absence of a mind. A consequence of this corporeal memory is that the automaton "can naturally be disposed to imitate all the movements that real men—or many other similar machines—will make when [the soul] is present" (11:185). This claim is an overstatement, since Descartes did not think that a mindless machine could engage in genuine speech or exhibit general reasoning ability (6:56–57). But it shows that Descartes was willing to imagine that some psychological functions—such as the development of situationally appropriate behavior in response to past patterns of sensory stimulation—arise from bodily mechanisms alone. Accordingly, he was willing to go further with a "psychology" of automata than James would later permit. This Cartesian psychology of the mindless machine is, by Descartes' own characterization (AT 11:202), a mechanization of many functions of the Aristotelian sensory soul: Functions that we and many of Descartes' contemporaries would describe as "psychological" (see Hatfield, 1992; Vidal, 1992).

Descartes and James are in partial agreement in describing a key aspect of properly mental or conscious states. For Descartes, the mind is the home of the means–ends motivating effects of the passions: The passions move the will to avoid the harmful and seek the beneficial. For James, too, consciousness serves that function. However, James was unwilling to ascribe to a bodily process the function of causing emotional states of mind that are intrinsically motivating. He regarded the natural motivators in the conscious world to be considerations of benefit and harm, which may also be associated with pleasure and pain. For James the empiricist, the relation of emotional feelings to the conscious world of ends must be learned. For Descartes, nature or God sets up the mind–body relation so that passions naturally portray the usefulness and importance of a given situation to the subject: Within the framework of his dualism, he posited laws of mind–body interaction such that, by brute causal relation, a brain state simply produces a mental state possessed of content not found in the material brain. James sought to explain the function of consciousness through Darwinian evolution, but he did not extend the mechanism of natural selection to cognitive

contents that might accompany instincts and emotions. While seeking to overcome substance dualism with his “cerebro-mental” states, he retained an effective dualism of function: nonconscious brain processes are limited to reflexive, unthought-like responses, while consciousness introduces meaning and significance to perceived objects as a product of learning.

### 5. On “Cognitive” and “Noncognitive” Theories of Emotion in History

I began by asking whether Descartes had a Jamesian theory of the passions or emotions. Having found a clear statement of the body-first doctrine in Descartes, we ought now to conclude that James held a quasi-Cartesian theory. Descartes’ theory deserves the honor of serving as the benchmark body-first theory by right of priority. James’ theory was better known and so more useful as a standard of comparison in the past, but now that Descartes’ theory is receiving more attention (e.g., S. James, 1997; Radner, 2003; Shapiro, 2003), it can serve in that role.

In this section I will compare Descartes’ and James’ theories with more recent ones, but first I must defend the practice of comparing psychological theories across the centuries. James was comfortable with such comparisons: He placed Descartes in the theoretical context of neural automatism, and he cited with favor some arguments from Berkeley on perception (2:43 n. 77) and recommended the 18th-century author Christian Wolff on attention (1:409). Nonetheless, some historians of psychology now see James as historically connected to current psychology, but place Descartes in another world and deny that he discussed the phenomena that we call the emotions (Danziger, 1997; Smith, 2005).

The prescriptive claims of such historians carry their own presuppositions about the origin of the discipline of psychology and their own theoretical assumptions about the emotions as a psychological phenomenon. Danziger (1997) and Smith (2005) both accept the conventional story that psychology first arose as a discipline in the late 19th century. This origin myth originally served the purpose, in Boring’s (1929) hands, of seeking to fix the identity of psychology as a basic rather than applied science (O’Donnell, 1979) and as experimental rather than theoretical (Hatfield, 2002a). For Danziger and Smith, the recency of psychology as a discipline depends on a narrow sociological definition of a *discipline* as professionalized in a 20th century manner, by contrast with a broader definition based on subject matter, methods, and place in the university curriculum, which puts the origin of psychology with the ancient Greeks, and dates the conception of modern natural scientific psychology from the 18th century (Hatfield, 1997).

Danziger’s assertion (1997, p. 5) that Descartes’ talk of “passions” is conceptually alien to current discussions of “emotions” rests on the view that the emotions are social constructions. This is a controversial thesis, and indeed even authors whom Danziger cites in its defense allow for some panhuman emotions, by contrast with culturally specific emotion language and conceptualization (Russell, 1991; Wierzbicka, 1995). Descartes and James were examining emotion, not emotion talk.

Moreover, to the extent that Descartes and James fall within our conceptual and linguistic ancestry, then even if their results are in some ways culturally relative, they are relative to our culture. On that score, Smith (2005, pp. 85–86) cites Dixon (2003) in support of strong historical discontinuity of emotion concepts in European thought. Dixon contends that the term ‘emotion’ first came into widespread use in the 19th century as a badge of a secularized psychology, and that this one term collapsed the earlier notions of passion, affect, appetite, and sentiment. Dixon’s careful analysis focuses on the English word ‘emotion’ rather than the concept of emotion. His focus on English precluded his considering emotion work in other languages, including German, Latin, and French; works in the latter two languages belie his claim (2003, p. 4) that, due to conceptual discontinuity, the phrase ‘psychology of the passions’ should not occur (Maillet, 1877; Zander & Kindblad, 1791). Indeed, Dixon himself recognizes that for some purposes, it is better to focus on concepts than words: Contrary to Danziger (1997) and Smith (2005), he argues that psychology is “sometimes used to refer to a broader tradition of systematic thought about mental life” that extends back to the ancient Greeks (Dixon, 2003, p. 12). Here he does not track the *word* ‘psychology’ but the *concept* of mental life. Further, Dixon (2003, p. 16) acknowledges that for historical purposes lying outside his “science-and-religion historiography,” it may not be necessary to stress the specific differences in emotion vocabulary that he investigates, between ‘passions’ (and other terms) and ‘emotions’.

The question of whether Descartes, James, and more recent thinkers were all talking about the same thing depends on several substantive factors. If emotion is a natural kind (Charland, 2000), then at least some subset of their discussions could have this natural kind as a common subject matter. If emotion is not a natural kind but emotional phenomena fall into a few groupings, including basic emotions that are natural kinds, socially constructed feelings, and a “folk” remainder (Griffiths, 1997, ch. 9), then Descartes and James, with their division between original and developed emotions, remain in the game. Moreover, the attempt to determine similarities and differences across time is complicated by the possible confounding of theoretical differences with historical change: Some authors before and after James held that emotions are bare noncognitive feelings, whereas other authors before and after James assigned cognitive content to emotions. The theoretical differences entail that some affective states are included or excluded: Descartes includes desire as an emotion, but he believes that emotions have cognitive content that motivates the will, and that passionate desires are passive responses like other emotions; James excludes cognitive and motivational content from the emotions. In any event, the conceptual continuity of Descartes’ writing with more recent theory is attested by his list of primitive passions: Wonder (or surprise), love, hatred, desire, joy, and sadness. Of these, surprise and sadness appear on several recent lists of basic or primary emotions, and the others appear on the more extended lists (Damasio, 1999, p. 50; Ekman, 1992, p. 193; Plutchik, 1980, pp. 160–162). Historically, we should acknowledge continuities and family resemblances where they occur, and they certainly occur in thought on the emotions. We should of course also recognize differences in aim, content, and context, as needed.



A central contrast between Descartes and James is that the first held that emotions are cognitive representations of situations, whereas the second held that they are noncognitive feeling responses to situations. In discussions since James, various cognitive and noncognitive theories have vied for supremacy. From the 1930s, Cannon (1915, 1927) was widely seen as having discredited James' bodily perception theory by showing that the emotions do not depend on perception of visceral stirrings, which in any case are not sufficiently context specific to produce the variety of emotional contents, but on subcortical (thalamic) processes that yield adaptive behavior and that interact with sensory perceptions to yield the variety of emotional conscious feelings. His, like James', was a noncognitive theory, which nonetheless permitted developed cognitive discriminations to trigger some emotional responses (Cannon, 1931). In a mixed Cartesian and Jamesian revival, LeDoux (1996) sees emotions as physiological (noncognitive) appraisals of the current situation, where "appraisal" means something like what both Descartes and James had in mind in linking emotions with adaptive, instinctive reflexes. Similarly, Damasio (1994, 1999) contends that emotions are embodied automatic responses to the world that subsequently take on cognitive meaning. The positions of LeDoux and Damasio are closer to Descartes in holding that these processes need not start from a conscious perception, and in invoking nonconscious psychological processing of significant sensory stimuli; however, like James and unlike Descartes, they do not ascribe innate cognitive content to emotions.

There are various types of cognitive theories of the emotions. Ancient Stoics (see Knuuttila, 2005, pp. 55–56) and modern propositionalists (Gordon, 1987; Solomon, 1976) hold that emotions are constituted by hasty or implicit judgments. Schachter and Singer (1962) updated Cannon's (1915) finding that bodily responses are too generic to account for emotion contents by proposing a type of cognitive theory: Emotions are cognitive interpretations of one's physiological states in light of one's cognitive appraisal of the current situation; physiological arousal may be interpreted as fear in a dangerous situation, as happiness in happy circumstances. Lazarus (1991) articulated a detailed cognitive appraisal theory, which says that emotions are complex cognitive states that appraise the current situation in relation to the subject's resources for responding to it. Tooby and Cosmides (1990) propose that the appraisals underlying emotion are the result of evolved cognitive mechanisms. (See Griffiths, 1997, pt. 1, and Prinz, 2005, ch. 1, for reviews.)

Descartes and James both saw the emotions as adaptive reflexes. Descartes attributed the original triggers of emotions to unintelligent bodily mechanisms. These embodied mechanisms may mimic rational processes, but they are not genuinely rational. Animals are designed to behave in ways that respond to their internal states (e.g., lack of food) and external circumstances (presence of food) in a situationally appropriate manner. James called some reflexive behavior "apparently intelligent" (1:130), but insisted that no genuine means–ends reasoning lay behind this so-called "intelligence" (1:141). Rather, these embodied stimulus–response reflexes might arise through blind Darwinian selection because those reflexes yielded effective behavior (2:678–688), where effectiveness is measured in terms of survival



and reproduction. In this regard, the Cartesian and Jamesian reflex mechanisms are out of step with some recent authors who see such “automatic” behavior (“reflexive” behavior in James’ broad sense) as a product of nonconscious cognitive processes, perhaps “modularized” or encapsulated in a special-purpose brain mechanism (Fodor, 1983). In describing the internal dynamics of such nonconscious processes (whether modularized or not), theorists posit representations, memory, and calculation of outcomes (Fodor, 1975, ch. 1; Lazarus, 1991; Tooby & Cosmides, 1990).

The way in which James invoked Darwin to explain adapted instinctive behavior brings this difference into relief. In James’ account, if a behavior is selected, it is selected as a stimulus–response pairing. James conceived the stimulus side as a bare feeling, such as a bear-image or bear-shape. Such a feeling can become a conceptualized representation through association with a bear-classification or bear-idea. But it does not initially gain its purchase on behavior by means of representational content of “badness” or “danger” or even “bearness.” For James, that is an advantage of Darwinian explanations of instincts and emotions: Such explanations allow for a *result* that adapts means to ends without requiring any *means–ends reasoning* to produce that result (1890, 2:678–688). In his view, Darwinian “natural selection of accidentally produced tendencies to action” suffices to bring about the outcome (2:683).

James’ position suggests that (pain-causers aside) at least some things come to be perceived as “bad” because they have been linked with avoidance through experience. Assuming that fear of bears is instinctive, with experience we might come to perceive the bear as “bad” *because* we feel ourselves shrinking back from it. For many of our interactions with the world, our bodies would tell us that things are bad or good, not initially by yielding representations of the things as bad or good, but by linking neutral sensory representations with an awareness of our visceral responses to the things. In this way, James’ theory is the precursor to Damasio’s (1994, 1999) somatic marker theory.

If evolution could fix an innate tendency to withdraw from the bear, why could it not also fix an innate perceptual recognition of the bear’s claws and teeth as threatening? It is an open question whether James’ Darwinizing attitude can and should be extended so as to bring cognitive dimensions of the emotions, such as were described by Descartes, into an evolutionary theory of emotion. This question in turn connects with current debates concerning the evolution of mind: Whether mind evolves through the accretion of innate content (Mithen, 1996) or via more generalized learning mechanisms (Donald, 2001). In Jamesian hands, an account of evolved content would in any case allow a role for habit and learning in guiding the emotions, thereby permitting both biological and social or cultural factors to shape the content and triggers of adult emotions, as both Descartes and James would have it.

James’ theory of the emotions, in its invocation of adaptive, reflexive bodily mechanisms, was Cartesian. In its denial of cognitive and motivational content to emotion, it was anti-Cartesian. The questions of whether emotions are inherently cognitive or only secondarily so, and whether they move us as cognitive motivators

or are byproducts of reflexive, adaptive mechanisms that produce behavior noncognitively, remain open. Clarity about Descartes' and James' answers to these questions may, for some, serve as benchmarks in coordinating further work on these central questions.

### Acknowledgements

This work was supported in part by the Adam Seybert Professorship in Moral and Intellectual Philosophy at the University of Pennsylvania. Krisanna Scheiter served as my research assistant.

### Notes

- [1] References to Descartes' works are to the pagination of the Adam and Tannery edition, Descartes (1964–1976, abbreviated "AT"), by volume and page number (e.g., vol. 11, p. 356 is cited as 'AT 11:356'). AT numbers are printed in the margins of most translations. For the *Passions of the Soul*, my quotations usually follow Stephen Voss's translation (Descartes, 1649/1989); for convenience, I append the original article number to the AT citation (e.g., AT 11:356, a. 36). For the *Treatise on Man* and *Description of the Human Body* (also AT 11), I use Stephen Gaukroger's translation (Descartes, 1664/1998). For the "Early Writings" (AT 10), correspondence (AT 1–5), *Discourse* (AT 6), *Meditations* (AT 7), and *Principles* (AT 8A), I follow Cottingham, Stoothoff, Murdoch, and Kenny (Descartes, 1984–1991). Where I've found it necessary to alter a translation, as in the present case, the AT citation is followed by an asterisk (\*); where no translation is readily available, I italicize the citation, as in AT 11:519. Finally, although Descartes uses the term 'soul' above (originally writing in French), he preferred the term 'mind' in theoretical contexts (metaphysics and natural philosophy, including psychology), and in such contexts he spoke of soul without religious intent (AT 7:161, 356).
- [2] James (1890, vol. 2, pp. 443–446) acknowledged similarities between his theory and that of Lange (1885/1922) on their "body-first" approach, and James' theory subsequently came to be known as the "James–Lange" theory. Scholars have since suggested that the two theories differ substantially: For James, an emotion is a feeling; for Lange, an emotion is the cardiovascular subclass of the wider class of physiological activity that, in James' theory, causes the feelings that are the emotions (Lang, 1994, p. 212). My focus is on James, and I will speak of "James' theory."
- [3] Unless otherwise identified, all references in this section are to James (1890), by volume and page number (e.g., 2:450) or by chapter number; in subsequent sections, James (1890) is explicitly cited where needed to avoid ambiguity.
- [4] James first published his conception of the "inverted" order among fear, running, and trembling in 1884 (p. 190), and repeated the passage verbatim in 1890. He explicitly denied that we run because we are frightened, but when he turned the case around, he wrote that we are "afraid because we tremble," not mentioning the running, which, as discussed below, he considered to be an instinctive response that may precede the emotional response. In his 1894 article on emotions, James uses the phrase "afraid because we run" in describing the original passages and also as an example of the "slapdash brevity" that he himself, among others, had used in characterizing his theory (1894, p. 519). I regard James (1894) as a consistent elaboration of the theory presented in James (1884) and (1890, ch. 23–26), and so I treat these works together (contrary to Dixon, 2003, ch. 7). In this article, I do not consider

whether James developed a later theory of emotion in connection with his analysis of religious feeling, as Averil (1992) maintains.

- [5] Earlier, addressing the mind's relation to extra-brain objects, James (1890) partitioned such relations into the "cognitive" and the "emotional": "It *knows* them, and it inwardly *welcomes or rejects* them" (1:216). Talk of welcoming and rejecting suggests that emotions make us perceive objects under a pro or con aspect, apparently belying my claim that emotions are not motivational for James. Two considerations tell against this result. First, James could be speaking here of the developed emotions, which *can* present objects under a pro and con aspect. Second, James is almost certainly using the term 'emotions' here as shorthand for the three major classes of feeling-caused movements, instincts, emotions, and volitions; instincts originally involve welcoming or rejecting behaviors, produced "reflexively" outside consciousness, while some developed emotions and some volitions (all of which are developed) present objects in consciousness under a pro or con aspect.
- [6] Descartes used 'passions' as a technical term for a group of body caused states that we would reasonably classify as emotions. He did not use the term 'emotion' as a technical term but applied it to any changes occurring in the mind (AT 11:350\*, a. 28). Still, he considered it especially appropriate for states that "agitate" the mind (AT 11:350) and he applied it to purely intellectual states, such as intellectual joy, that are "like" the passions but are not body caused (AT 11:440, a. 147); in noting this likeness, he implies a broader category of "emotions of the soul" (contrary in spirit to Smith, 2005, p. 86, citing Dixon, 2003, p. 4), and indeed this usage of 'emotion' by Descartes may be the source of the term in David Hume, whose usage Dixon (2003, p. 108) believes might have given rise to the modern English term. I defend my classing of Cartesian passions with Jamesian emotions in §5.
- [7] I here leave aside questions about Descartes' account of mind-body interaction, e.g., whether he was an occasionalist of some sort or a causal interactionist (on which, see Hatfield, 1998, p. 306, n. 87, 2005b).
- [8] On the details of Cartesian brain function, see Beyssade (2003), Hatfield (1992, 2005b), and Sutton (1998). Animal spirits may seem fanciful today, but they represented Descartes' attempt to explain brain function using the resources of the "mechanical philosophy" of his time, a new scientific outlook that he promoted (along with Galileo and Robert Boyle).
- [9] Canguilhem studied the origin of the reflex concept, which he (1955, pp. 3–4) defined in the "narrow loop" sense already mentioned (§2). Starting from that definition, he concludes that Thomas Willis first developed the concept by distinguishing (which Descartes did not) cerebrally mediated automatic responses and from those mediated by lower anatomical structures (the cerebellum, for Willis). However, on James' wider notion of "reflex" or "semi-reflex" automatic actions, Descartes did identify a group of involuntary, automatic, reflexive behaviors in human and nonhuman animals. As with James, these responses involve a loop of neural activity through the central brain mass or cerebrum. Fearing (1970) examines the historical development of various notions of reflexive response, both wide and narrow.
- [10] There is a limited parallelism among Descartes' three successive uses of the phrase 'we refer to', with respect to external sense-perceptions, internal sensations, and passions (AT 11:346–347, a. 23–25). We refer external sensations to external objects and internal sensations to our body as the causes and the represented objects of such perceptions; we do not refer our sensations to the external object as if it were their experiencing subject. We refer the passions to our own soul because they are perceptions "whose effects are felt as in the soul itself, and of which no proximate cause to which they may be referred is commonly known" (AT 11:347, a. 25)—i.e., Descartes assumes that most people don't know that the passions are caused by animal spirits flowing from the pineal gland. Before we understand the nature of the passions, we might well "refer" them to the soul as a report of the state of the soul as self: The self feels sad. Descartes subsequently explains that the passions proper are, nonetheless, obscure and confused perceptions that relate to our

situation (AT 11:349–350, 372, a. 28, 52). Whereas we do properly capture the functions of the external and internal senses by “referring” them to—seeing them as caused by and as telling us about—external objects and internal bodily states, it takes further theorizing to determine the function of the passions proper.

- [11] In Descartes’ metaphysics there is a question of whether the notion of the “good of the body” can be defined independently of the mind–body union. Descartes invokes the notion in relation to soulless animals (e.g., AT 11:519), implying that there are well-functioning animal bodies. However, in a pre-Darwinian world in which Descartes has officially excluded appeal to final causes arising from God’s designing intentions (AT 7:55, 8A:15, 81), it is unclear what funds such attributions. Some scholars (e.g., Rodis-Lewis, 1978, and Guèroult, 1984–1985, ch. 17) have suggested that the well-functioning machine of the human body must be understood in relation to the mind–body complex, as suggested by some wording in Meditation VI (AT 7:85) about the functioning of clocks; however, this passage concerns whether nature or God can be ascribed “errors” and may not generalize to other discussions of animals as machines. Moreover, Descartes subsequently invokes the “well-being of the [human] body” (AT 7:89). In conceiving the body as a machine, we might assess its well-functioning by considering its machine-like design (Hatfield, 1992, in press). Further, the existence of the mind–body complex presupposes a well-functioning human bodily machine; the mind leaves a body that is “broken,” i.e., one that, like a broken clock, no longer performs the movements “for which it is constructed” (AT 11:330–331, a. 6).
- [12] In the passage quoted from Article 70, Descartes says that the impression in the brain (not a mental state) “represents” an object as rare. This raises questions concerning the representational content of brain impressions. Must they inherit their representational content from the mental states that they cause in human beings? Or do they represent external objects in virtue of a mind-independent causal relation (or other non-intentional relation, such as resemblance) to those objects, in which case corporeal memory alone would have to function to mark the impression as dissimilar to previous impressions, and hence as “rare”? These questions are beyond the scope of the present article (for more, see Hatfield, 2007).
- [13] Sutton (1998) and others, including Cottingham (1978) and Gaukroger (1995, pp. 278–290), question whether Descartes actually denied genuine sentience (as opposed to reflective consciousness) to nonhuman animals, contending that he invoked felt sensations and passions to explain nonhuman animal behavior. I reject this interpretation (Hatfield, 2005b, in press).

## References

- Averril, J. R. (1992). William James’s other theory of emotion. In M. E. Donnelly (Ed.), *Reinterpreting the legacy of William James* (pp. 221–229). Washington, DC: American Psychological Association.
- Baldwin, J. M., Stout, G. F., & Lloyd Morgan, C. (1901–1905). Instinct. In J. M. Baldwin (Ed.), *Dictionary of philosophy and psychology*, (Vol. 1, pp. 555–556). New York: MacMillan.
- Barbalet, J. M. (1999). William James’ theory of emotions: Filling in the picture. *Journal for the Theory of Social Behaviour*, 29, 251–266.
- Beyssade, J.-M. (2003). On sensory–motor mechanisms in Descartes: Wonder versus reflex. In B. Williston & A. Gombay (Eds.), *Passion and virtue in Descartes* (pp. 129–152). New York: Humanity Books.
- Boring, E. G. (1929). *A history of experimental psychology*. New York: Century.
- Calhoun, C., & Solomon, R. C. (1984). Introduction. In C. Calhoun & R. C. Solomon (Eds.), *What is an emotion?* (pp. 3–40). New York: Oxford University Press.

- Canguilhem, G. (1955). *La Formation du concept de réflexe aux XVIIe et XVIIIe siècles* [The formation of the concept of reflex in the seventeenth and eighteenth centuries]. Paris: Presses Universitaires de France.
- Cannon, W. B. (1915). *Bodily changes in pain, hunger, fear, and rage: An account of recent researches into the function of emotional excitement*. New York: Appleton.
- Cannon, W. B. (1927). The James-Lange theory of emotions: A critical examination and an alternative theory. *American Journal of Psychology*, 39, 106–124.
- Cannon, W. B. (1931). Again the James-Lange and the thalamic theories of emotion. *Psychological Review*, 38, 281–295.
- Charland, L. C. (2002). The natural kind status of emotion. *British Journal for the Philosophy of Science*, 53, 407–419.
- Damasio, A. (1994). *Descartes' error: Emotion, reason, and the human brain*. New York: G. P. Putnam's Sons.
- Damasio, A. (1999). *The feeling of what happens: Body and emotion in the making of consciousness*. San Diego, CA: Harcourt.
- Danziger, K. (1997). *Naming the mind: How psychology found its language*. London: Sage.
- Demos, E. V. (1992). Silvan Tomkin's theory of emotion. In M. E. Donnelly (Ed.), *Reinterpreting the legacy of William James* (pp. 211–219). Washington, DC: American Psychological Association.
- Descartes, R. (1973). *Oeuvres* (New ed., Vols. 1–11, C. Adam & P. Tannery, Ed.). Paris: Vrin/CNRS.
- Descartes, R. (1964–1976). In C. Adam & P. Tannery (Eds.) *Oeuvres* (new ed., Vols. 1–11). Paris: Vrin/CNRS.
- Descartes, R. (1984–1991). *Philosophical writings* (Vols. 1–3, J. Cottingham, R. Stoothoff, D. Murdoch, & A. Kenny, Trans.). Cambridge, England: Cambridge University Press.
- Descartes, R. (1989). *Passions of the soul* (S. Voss, Trans.). Indianapolis, IN: Hackett. (Translation of *Passions de l'ame*, 1649, Paris: Henry Le Gras).
- Descartes, R. (1998). *Descartes: The world and other writings* (S. Gaukroger, Trans.). Cambridge, England: Cambridge University Press. (Translation of *L'homme de René Descartes*, C. Clerselier, Ed., 1664, Paris: Jacques Le Gras).
- Dixon, T. (2003). *From passions to emotions: The creation of a secular psychological category*. Cambridge, England: Cambridge University Press.
- Donald, M. (2001). *A mind so rare: The evolution of human consciousness*. New York: Norton.
- Ekman, P. (1992). An argument for basic emotions. *Cognition and Emotion*, 6, 169–200.
- Ellsworth, P. C. (1994). William James and emotion: Is a century of fame worth a century of misunderstanding? *Psychological Review*, 101, 222–229.
- Fearing, F. (1970). *Reflex action: A study in the history of physiological psychology*. Cambridge, MA: MIT Press (Original work published 1930).
- Fodor, J. A. (1975). *The language of thought*. Scranton, PA: Crowell.
- Fodor, J. A. (1983). *Modularity of mind: An essay on faculty psychology*. Cambridge, MA: MIT Press.
- Gordon, R. M. (1987). *The structure of emotions: Investigations in cognitive philosophy*. Cambridge, England: Cambridge University Press.
- Griffiths, P. E. (1997). *What emotions really are: The problem of psychological categories*. Chicago: University of Chicago Press.
- Guèroult, M. (1984–85). *Descartes' philosophy interpreted according to the order of reasons* (Vols. 1–2, R. Ariew, Trans.). Minneapolis: University of Minnesota Press.
- Hatfield, G. (1992). Descartes' physiology and its relation to his psychology. In J. Cottingham (Ed.), *Cambridge companion to Descartes* (pp. 335–370). Cambridge, England: Cambridge University Press.
- Hatfield, G. (1997). Wundt and psychology as science: Disciplinary transformations. *Perspectives on Science*, 5, 349–382.
- Hatfield, G. (1998). Force (God) in Descartes' physics. In J. Cottingham (Ed.), *Descartes* (pp. 281–310). Oxford, England: Oxford University Press.

- Hatfield, G. (2002a). Psychology, philosophy, and cognitive science: Reflections on the history and philosophy of experimental psychology. *Mind & Language*, 17, 207–232.
- Hatfield, G. (2002b). Sense-data and the philosophy of mind: Russell, James, and Mach. *Principia*, 6, 203–230.
- Hatfield, G. (2004). Sense-data and the mind–body problem. In R. Schumacher (Ed.), *Perception and reality: From Descartes to the present* (pp. 305–331). Berlin: Mentis Verlag.
- Hatfield, G. (2005a). History of philosophy as philosophy. In T. Sorell & G. A. J. Rogers (Eds.), *Analytic philosophy and history of philosophy* (pp. 83–128). Oxford, England: Clarendon Press.
- Hatfield, G. (2005b). Rationalist theories of sense perception and mind–body relation. In A. Nelson (Ed.), *Blackwell companion to rationalism* (pp. 31–60). Oxford, England: Blackwell.
- Hatfield, G. (2007). *The Passions of the soul and Descartes' machine psychology*. *Studies in History and Philosophy of Science*, 38, 1–35.
- Hatfield, G. (in press). Animals. In J. Carriero & J. Brogton (Eds.), *Companion to Descartes*. Oxford, England: Blackwell.
- Huxley, T. H. (1884). On the hypothesis that animals are automata and its history. *Science and Culture* (pp. 206–254). New York: Appleton.
- James, S. (1997). *Passion and action: The emotions in seventeenth-century philosophy*. Oxford, England: Clarendon Press.
- James, W. (1884). What is an emotion? *Mind*, 9, 188–205.
- James, W. (1890). *Principles of psychology*. (Vols. 1–2). New York: Henry Holt.
- James, W. (1894). The physical basis of emotion. *Psychological Review*, 1, 516–529.
- James, W. (1904). Does “consciousness” exist? *Journal of Philosophy, Psychology and Scientific Methods*, 1, 477–491.
- Lang, P. J. (1994). The varieties of emotional experience: A meditation on the James-Lange theory. *Psychological Review*, 101, 211–221.
- Lange, C. G. (1922). *The emotions* (I. A. Haupt, Trans., from German trans. of H. Kurella). Baltimore, MD: Williams and Wilkins. (Original work published in Danish in 1885).
- Lazarus, R. S. (1991). Cognition and motivation in emotion. *American Psychologist*, 46, 352–367.
- LeDoux, J. E. (1996). *The emotional brain: The mysterious underpinnings of emotional life*. New York: Simon & Schuster.
- Maillet, E. (1877). *De l'essence des passions: Étude psychologique et morale* [On the essence of the passions: A psychological and moral study]. Paris: Hachette.
- Michael, E. (2000). Renaissance theories of body, soul, and mind. In J. P. Wright & P. Potter (Eds.), *Psyche and soma: Physicians and metaphysicians on the mind–body problem from Antiquity to the Enlightenment* (pp. 147–172). Oxford, England: Clarendon Press.
- Mithen, S. (1996). *The prehistory of mind: The cognitive origins of art and science*. London: Thames and Hudson.
- O'Donnell, J. M. (1979). The crisis in experimentalism in the 1920s: E. G. Boring and his uses of history. *American Psychologist*, 34, 289–295.
- Plutchik, R. (1980). *Emotion: A psychoevolutionary synthesis*. New York: Harper & Row.
- Prinz, J. (2004). *Gut reactions: A perceptual theory of emotion*. Oxford, England: Oxford University Press.
- Radner, D. (2003). The function of the passions. In B. Williston & A. Gombay (Eds.), *Passion and virtue in Descartes* (pp. 175–187). New York: Humanity Books.
- Rodis-Lewis, G. (1978). Limitations of the mechanical model in the Cartesian conception of the organism. In M. Hooker (Ed.), *Descartes: critical and interpretive essays* (pp. 152–170). Baltimore, MD: Johns Hopkins University Press.
- Russell, J. A. (1991). Culture and the categorization of emotions. *Psychological Bulletin*, 110, 426–450.
- Schachter, S., & Singer, J. E. (1962). Cognitive, social, and physiological determinants of emotional state. *Psychological Review*, 69, 379–399.



- Shapiro, L. (2003). Descartes' *Passions of the soul* and the union of mind and body. *Archiv für Geschichte der Philosophie*, 85, 211–248.
- Smith, R. (2005). The history of psychological categories. *Studies in History and Philosophy of Biological and Biomedical Sciences*, 36, 55–94.
- Solomon, R. (1976). *The passions*. Garden City, NY: Anchor Press.
- Sutton, J. (1998). *Philosophy and memory traces: Descartes to connectionism*. Cambridge, England: Cambridge University Press.
- Tooby, J., & Cosmides, L. (1990). The past explains the present: Emotional adaptations and the structure of ancestral environments. *Ethology and Sociobiology*, 11, 375–424.
- Vallelonga, D. S. (1992). A phenomenological response to James's view of emotion. In M. E. Donnelly (Ed.), *Reinterpreting the legacy of William James* (pp. 231–241). Washington, DC: American Psychological Association.
- Vidal, F. (1992). Psychology in the eighteenth century. *History of the Human Sciences*, 23, 195–211.
- Wierzbicka, A. (1995). Emotion and facial expression: A semantic perspective. *Culture and Psychology*, 1, 227–258.
- Zander, A. D., & Kindblad, P. (1791). *Meditationes psychologicae de passionibus* [Psychological meditations on the passions]. Uppsala: Edman.