CHAPTER 1

What's at the Heart of Emotions?

Are emotions simply private experiences concealed inside individual minds and bodies? Psychologists often search for their distinguishing characteristics in these internal locations. But focusing on physiological responses and cognitive appraisals distorts our understanding of emotion's relations to the contexts in which it occurs. In fact, emotion is a form of relational activity. Unfolding transactions between people, objects and events give structure to our emotional orientations to what is happening. And these orientations in turn influence other people and their own reciprocal orientations. Some social emotions, such as anger and embarrassment, directly target other people's responses as ways of dealing with current concerns. Other emotions are oriented at non-social objects but still serve social functions by affecting other people's orientations to those objects. Although emotions are often experienced privately, this is only possible because we have learned how they work in more public arenas.

It's not uncommon to ponder the true nature of love, resist accusations of hate and envy, or dispute the sincerity of expressed gratitude. We may be uncertain that apologies or denials are genuinely heartfelt. But when it comes to our own emotions, the doubts disappear. Personally experienced passions seem like incontrovertible and obvious things, 'so close to, and so entirely within our soul, that it is impossible to feel them without their being actually such as it feels them to be' (Descartes, 1649, p. 343). When talking about them in everyday conversation, we are pretty sure we know what they are.

Less so in academic psychology. Scholarly disagreement about emotion's definition has persisted for centuries, and shows little sign of reaching resolution (Russell, 2012). The age-old question 'what is an emotion?' (e.g., James, 1884) still lacks a definitive answer. Does this mean that we are approaching it the wrong way? Perhaps this seemingly straightforward issue is not so straightforward after all.

Part of the problem comes from our sense that emotion is somehow out of the ordinary. This encourages us to look for an added ingredient that makes it special (Parkinson, 2013). We ask ourselves what transforms everyday experience into something qualitatively different, something

emotional rather than mundanely non-emotional. Maybe a kiss from the right princess could perform the alchemical trick. Perhaps a king somewhere has the Midas touch. But the hunt for the goose that lays the golden eggs (James, 1898, p. 448) may simply be a wild goose chase.

Setting aside myth and fairy tale, psychologists typically search for emotion's special ingredient inside the human mind, brain or body, trying to get to the heart of things. But maybe the confusion arises because they are looking in the wrong places. What if there is no core component or transformative element deep within? What if emotions get their meaning and purpose from connections with the people in the world outside, not what they feel like inside?

In this chapter, I consider the various physiological and cognitive factors that are said to distinguish emotion from non-emotion and different emotions from each other. I then attempt to develop a socially oriented alternative approach to these issues of differentiation. I shall argue that emotion's special ingredient is its capacity to align and realign people's relations with each other and with objects and events in the shared environment.

Interoceptive Signals

What makes emotions emotional? In attempting to answer this question, William James (1884) developed an explanation that is widely regarded as the first genuinely psychological theory of emotion. He started by considering which aspects of emotional experience are essential for its emotional quality. This thought experiment led him to conclude that bodily changes of various kinds add the emotional heat to what we are feeling. Without them, our experience 'would be purely cognitive in form, pale, colorless, destitute of emotional warmth' (p. 190), leaving only 'a cold and neutral state of intellectual perception' (p. 193).

According to James, then, emotions are subjectively felt experiences that depend crucially on internally sensed bodily reactions. From this perspective, the literal heart might well be one of the organs whose activities help to generate emotion. The feeling of it pumping or skipping a beat might provide the heat behind our reaction.

However, it soon became apparent that these interoceptive signals showed less-differentiated patterns than the emotions they were supposed to produce. According to James's ex-pupil, Walter Cannon (1927), very similar bodily changes occurred across a wide range of different emotional and non-emotional states. He believed that the brain generates a coordinated and unified arousal response in the autonomic nervous system (ANS: see Figure 1.1) whenever any kind of emotional challenge is detected. This leads to the release of metabolic energy to muscles and organs. The heart speeds up and pumps more blood.

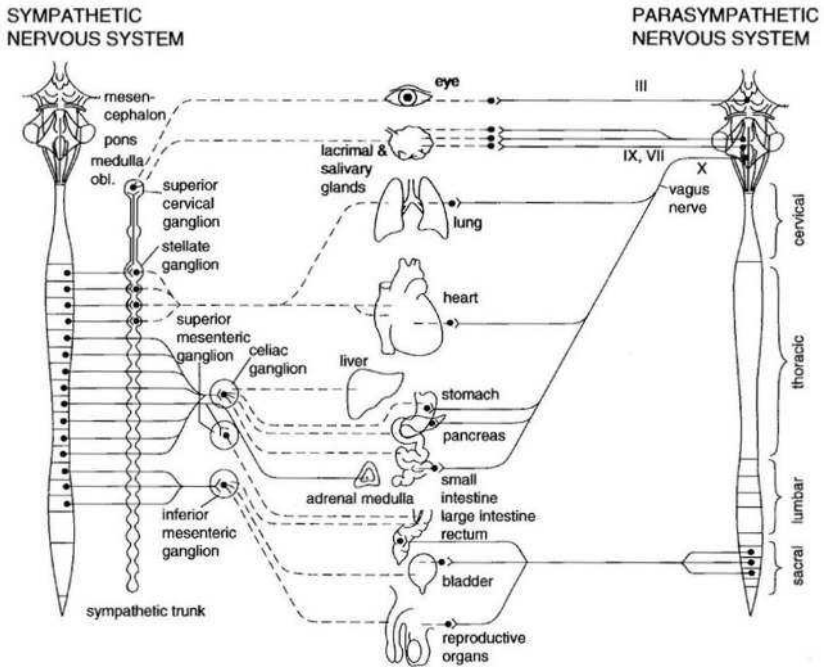

Figure 1.1 The sympathetic and parasympathetic divisions of the autonomic nervous system (Jänig, 2006)

Breathing quickens. The purpose of this activation is to prepare the body for any action that might be required. And it doesn't matter whether that action is fight or flight, approach or withdrawal.

If Cannon is correct, checking our bodily response cannot tell us what emotion we are experiencing. It cannot even indicate whether we are emotional at all. Autonomic arousal can produce the same interoceptive symptoms across a wide range of very different circumstances, including visits to the gym as well as more affectively charged victories and defeats, challenges and threats. Our arousal could just as well be angry arousal or fearful arousal. It might reflect either excitement or simple exertion.

Not everyone agrees with this conclusion. Some researchers argue that autonomic activity generates more distinctive patterns than Cannon's account implies (e.g., Ekman, Levenson & Friesen, 1983), allowing perceivers to make finer emotional discriminations. Others point out that the bodily changes discussed by James not only include autonomic changes but also muscular activity in the face and elsewhere. Perhaps then, people can detect the quality of emotion from a more integrated pattern of response across the whole body (e.g., Laird & Bresler, 1992).

However, neither of these attempts to rescue James's theory quite does the trick. The problem is that there is no distinctive bodily signature for any emotion, however many sources of interoceptive feedback are considered. It is true that autonomic responses are not as unitary or coordinated as Cannon believed. Different parts of the ANS can respond separately, producing different patterns (Folkow, 2000; Levenson, 1988). It is also true that the ANS response profiles of some emotions are often different from those of others (e.g., Kreibig, 2010). Your blood pressure is generally more likely to increase when you are angry than when you are sad, for example. But these differences are not clear enough to produce the obvious subjective distinctions between these two emotions. They don't seem to match their contrasting feelings or qualities.

And the autonomic differences are not consistent either. No pattern of bodily changes characterises every instance of anger, sadness or any other emotion (Siegel et al., 2018). And there is no solid evidence that any pattern of ANS activity only occurs during the experience of any particular emotion but never at other times. In other words, there are no autonomic fingerprints for emotions. The body cannot tell us precisely what emotion we are experiencing, period.

The reason is obvious. ANS responses depend on the situation and the kind of action that situation requires. And these requirements don't stay constant across all examples of any emotion. When I am angry, the way my body reacts depends on where my anger is directed, the person or thing I am angry with, what that person or thing is likely to do and what actions are available to me in the situation I happen to be in at the time. The autonomic response will be different if someone has a tight grip on my arm, if someone is about to punch me, or if they say something sarcastic in a formal meeting. In each case, the body needs to prepare for different actions in different ways. A fixed ANS pattern wouldn't work.

Or at least it wouldn't work perfectly. Some theorists argue that emotions prepare the body for the specific actions that were most likely to serve reproductive fitness at the time they first evolved. In other words, each distinct emotion might be associated with a default bodily response that once worked best on average when dealing with the situation that prompted the emotion (e.g., Scherer's, 2001, notion of a 'decoupled reflex'). If being ready to hit someone or something generally increased the prospect of survival across all kinds of provocation, then such a response might become prevalent in the population as a function of natural selection. Perhaps early hominids whose muscles were poised for punching whenever they were exposed to frustrating circumstances ended up being more likely to live to fight another day.

But how tightly would we need to specify the characteristic form of a behaviour to make this account work? Even an apparently delimited response such as punching has various possible profiles. It takes different forms when the antagonist is taller or shorter, at arm's length or closer and behind or in front of you. How your arm needs to move in order to hit the necessary target differs and changes depending on the situation and how it develops. No single set of muscular movements could provide any adaptive advantage, even if life really was so much simpler out on the savannah. So no default bodily signature seems viable.

And even if some elemental preparatory changes actually did always accompany any given emotion, how clearly would we be able to detect the internal signals they produced? Would we be able to focus our attention selectively enough to pick them out against the background of other things that our bodies happened to be doing at the time (cf. Stemmler et al., 2001)? Unless the signature symptoms override everything else the body is doing, the associated signals are likely to get lost in the noise.

What would detecting an autonomic signature tell us in any case? What extra emotional information could it provide? At some level, we must have already known what the emotional requirements of the situation were in order to produce the required pattern of bodily changes. Before reacting with fearful bodily changes, for example, we need to first perceive that something frightening is happening (e.g., Dewey, 1894). Isn't that initial emotional perception enough? Why would the body need to tell the brain what the brain must already know to make the body react in that way?

Two-Factor Theory

Another way of rescuing an interoceptive theory is to supplement it with additional principles. Schachter (1964) agreed with James that autonomic changes are crucial to emotional experience, but also accepted Cannon's evidence that they provided no diagnostic indication of the presence or quality of emotion. According to this view, generalised ANS arousal provides signals that need to be interpreted by reference to the current situation rather than ready-made information about the quality of experience. Perceivers work out what external factors provoked the internal response in order to make sense of its emotional implications. Thus, arousal attributed to an uncertain threat is felt as fear, arousal following an insult is felt as anger, and arousal experienced after receiving exciting news is felt as joy (Figure 1.2).

In a famous experiment, Schachter and Singer (1962) tested this theory by assessing the emotional consequences of independently manipulating autonomic arousal and information about the situation. The students

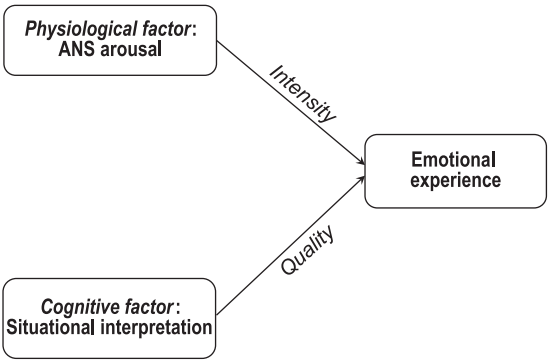

Figure 1.2 Schachter's two-factor theory (Parkinson, 1995, reproduced with permission from Routledge)

who participated believed that they were receiving an injection of a newly discovered vitamin compound called *Suproxin*, and that their perceptual performance would later be tested in order to assess its effects. In fact, the injection was either adrenaline, which leads to increased autonomic arousal, or a neutral saline solution that should not have produced any physiological effects. Among participants injected with adrenaline, one group was warned that they would experience side effects corresponding to adrenaline's genuine consequences (dry mouth, racing heart, etc.), so that they would have a non-emotional explanation for their experienced arousal. Participants injected with adrenaline without this warning of side effects were expected to explain their symptoms in terms of the situation, and consequently experience whatever emotion that situation implied.

Schachter and Singer (1962) stage-managed two alternative social situations that were specifically designed to provide contrasting emotional explanations for any unexplained arousal. The first was intended to encourage an angry interpretation. Participants were left in the waiting room with an accomplice of the experimenter who was posing as another participant. Their task while waiting was to fill out a questionnaire which asked increasingly personal questions. For example, there were requests for information about their mother's extra-marital relations and the bathing habits of close family members. While answering these questions, the accomplice made a show of getting increasingly cross before eventually tearing up the questionnaire and storming out of the room. In the second 'euphoria' condition, the accomplice instead improvised a series of games using objects that the experimenter had left lying around the room and encouraged the real participant to join in the fun. Paper planes were thrown and hula hoops spun.

The results of this experiment fail to justify its subsequent impact on the literature. There was no clear support for two key predictions. First, participants injected with a placebo did not report experiencing significantly less emotion than those injected with adrenaline and not warned of side effects. In other words, there was no evidence that unexplained arousal made any difference to emotional experience. Schachter and Singer argued that this failure to support their hypothesis arose due to their inability to exert full control over participants' autonomic responses and their explanations of those responses. In other words, some participants in the placebo condition may have experienced direct emotional reactions to the stage-managed situation and consequently experienced arousal ('self-aroused' participants), and some participants in the unexplained arousal conditions may have concluded that their symptoms were caused by the injection despite receiving no warning of side effects ('self-informed' participants). Only by removing these participants from their designated conditions, were the investigators able to make the predicted difference in emotional response statistically significant.

But why did 'self-aroused' participants have higher heart rates in the placebo condition in the first place? Presumably because of their stronger emotional reactions to the accomplice's behaviour. This means that selectively removing them from the placebo conditions leaves a group of participants who are generally less emotionally reactive. Correspondingly, self-informed participants may have been unconvinced that their arousal was due to the situation because they knew that their bodies would not normally react so strongly. Selectively removing them from the unexplained arousal condition therefore leaves a group of participants who are generally more emotionally reactive. So the comparison between the reconstituted placebo and unexplained arousal conditions now becomes a comparison between relatively less and relatively more emotionally reactive groups of participants. No surprise then that the difference in reported emotionality increased. More generally, tampering with random allocation to experimental conditions clearly invalidates statistical conclusions in this or any other study.

Implications of the second unsupported prediction are even more fatal. Participants injected with adrenaline and given inaccurate information about side effects on average reported themselves to be mildly happy in both euphoria and anger conditions (Zimbardo, Ebbeson & Maslach, 1977). Their ratings did not suggest that they were in widely divergent emotional states depending on their situational explanations for autonomic symptoms.

Given the inconclusive results, and the strong claims made for them, other researchers have since tried to replicate the experiment (e.g., Erdmann & Janke, 1978; Marshall & Zimbardo, 1979; Maslach, 1979).

None of these later studies provided unequivocal support for the theory either (see Manstead & Wagner, 1981; Reisenzein, 1983). This does not necessarily mean that Schachter was wrong. The problem may lie with the methodology rather than the theory behind it. Perhaps manipulating emotionally plausible situations independently of physiological arousal doesn't work because certain combinations of the two factors don't match or gel. People rarely experience bodily reactions that are disproportionate to what else is happening and may be confused by the incongruity. They may react in atypical ways to an atypical set of circumstances. Perhaps then arousal that better fits the emotional situation actually could contribute to our emotional experience. But in that case, the situation already provides an equally good explanation for the emotion anyway.

Schachter's theory implies that the special ingredient making emotion emotional does not lie wholly inside the body, but instead depends on arousal's connections with whatever is happening in the outside world. For him, emotion boils down to an interpretation of internal signals that is guided by cognitions about their causes. But our bodies don't react simply to provide information about what we are feeling. They provide energy and impulses that prepare us for action. Any internal signalling function seems secondary to this more practical purpose. Arousal helps to drive emotional behaviour, not to add emotional colour or heat to experience.

Perceptual Simulation and Emotion Construction

Barrett (e.g., 2017) developed a more sophisticated account of how internally perceived metabolic activity might contribute to emotional experience. In her view, context-specific perceptual simulations integrate available information coming from both inside and outside the body, providing a basis for distinctive emotion concepts (see also Chapter 2). Thus, someone might conceptualise their experience as the kind of 'anger' experienced when filling out an insulting questionnaire when the external and internal signals fit with a matching multimodal representation retrieved from memory. The situated anger representation in turn guides the individual's perception, attention and action, giving it its experienced angry quality.

According to this theory, different patterns of interoceptive signals might characterise different instances of the same emotion across different situations. It is only the application of the emotion concept that links these different instances together and makes them count as, and feel like, the emotion in question. So, unlike James, Barrett makes no claim that the body tells us what emotion we are experiencing, only that the changes we register are a key part of what the brain categorises to generate emotional experience.

Schachter's and Barrett's theories imply that bodily changes provide internal signals that help specify the felt quality of emotion. They both treat emotions primarily as inwardly focused personal experiences whose representation is what makes the main difference to their identification. As we shall see in the next section, other theorists put relatively more emphasis on emotion's object-orientation, and its dependence on appraisals of what is happening in the external environment.

Appraisal

Schachter (1964) implied that situational information clarifies the emotional meaning of experience in retrospect. By contrast, appraisal theorists such as Arnold (1960) and Lazarus (1991a) argue that interpreting and evaluating situational information is what activates emotional reactions in the first place. Bodily changes typically depend on things happening in the person's dealings with the world. They rarely pop up out of the blue as events in need of disambiguation. In most circumstances, we are already focused on whatever our emotion is about before any bodily changes begin to register. Perhaps, then, the way we perceive and interpret the current transaction provides the initial spark for any heat behind our response.

James's (1898) introspective focus diverted attention from the object-directedness and external orientation of most emotions. Although he acknowledged that the 'perception of an exciting fact' (such as seeing a wild bear in the woods) initially provokes the emotional bodily changes, he failed to explain why that fact (e.g., the bear's appearance) is perceived as exciting or emotionally provocative in the first place.

Instead of asking what makes internal experience emotional experience, Arnold's (1960) alternative thought experiment considered what makes the perception of what is happening in the person's life an emotional perception. Her conclusion was as follows:

> To perceive or apprehend something means that I know what it is like as a thing, apart from any effect on me. To like it or dislike it means that I know it not only objectively, as it is apart from me, but also that I estimate its relation to me, that I appraise it as desirable or undesirable, valuable or harmful for me, so that I am drawn to it or repelled by it. (p. 170)

According to Arnold, appraising what is happening as personally significant is what adds emotional heat to our response. To feel an emotion is not only to feel certain changes happening inside our bodies, but also to perceive the situation as having emotional qualities (Frijda, 2005). To feel angry means experiencing someone else as annoying just as much as it

means sensing internal turmoil. To feel pride means registering a personal achievement as well as feeling inflated or in high spirits.

Arnold's appraisal approach emphasises the 'intentionality' or aboutness of emotion: the fact that it always focuses on some particular thing that concerns us (e.g., Gordon, 1974; Ortony, Clore & Collins, 1988). We don't just get angry; we get angry with someone about what they have done. We don't just feel afraid; we are frightened of a potential event and about what its consequences might be. In philosophical terminology, whatever we are angry with, or frightened of, is known as the emotion's intentional 'object', even when that 'object' is a person, event or imagined abstraction rather than a physical thing. According to Arnold, it is our perceptual orientation to this object that gives colour to our emotion rather than our perception of what is happening inside the body. In other words, it's not bodily changes that specify emotional quality, but rather appraisals of the personal meaning of events.

Dimensions of Appraisal

According to Arnold, appraisal is not only what makes emotion emotional, but also what makes different emotions different from each other. In other words, distinctive patterns of appraisal give distinct emotions their specific qualities. Subsequent theorists have attempted to specify more precisely what these emotion-differentiating appraisal patterns might be (e.g., Frijda, 1986; Lazarus, 1966; 1991a; Roseman, 1979; Scherer, 1984; Smith & Ellsworth, 1985).

According to Smith and Lazarus (1993), the appraisal of motivational relevance determines whether a person experiences any emotion in the first place. In other words, unless what is happening relates to something that makes a difference to our plans, goals or concerns, we will not get emotional about it. The appraisal of motivational congruence further assesses whether events help or hinder progress towards our goals and determines whether our emotional reaction is positive or negative. We feel good when things are going our way and bad when they are not. The specific quality of our positive or negative emotion additionally depends on appraisals assessing who or what is responsible for the thing we are emotional about ('self- and other-accountability'), our capacity to cope with both that thing ('problem-focused coping potential') and the way it makes us feel ('emotion-focused coping potential') and the anticipated likelihood of negative and positive outcomes ('future expectancy').

Thus, anger is specifically prompted by appraisals of motivational relevance, motivational incongruence and other-accountability: the perception that someone else is responsible for the thing that is interfering with your goals (see Figure 1.3). This pattern of appraisal need not be