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Louis C. Charland

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Alexander Crichton on the psychopathology of the passions

LOUIS C. CHARLAND*
University of Western Ontario

Alexander Crichton (1763–1856) made significant contributions to the medical theory of the passions, yet there exists no systematic exegesis of this particular aspect of his work. The present article explores four themes in Crichton’s work on the passions: (1) the role of irritability in the physiology of the passions; (2) the manner in which irritability and sensibility contribute to the valence, or polarity, of the passions; (3) the elaboration of a psychopathology of the passions that emphasizes their physiological form rather than meaningful content or connections; and (4) the insistence that medical science ought to ignore ethical and other ‘moral’ psychological and social aspects of the passions.

Keywords: *affectivity; emotions; irritability; passions; sensibility; valence*

As all ideas, productive of joy, and its modifications, act like direct stimuli to the nervous and irritable fibre, and as it is the essential property of all strong stimuli quickly to exhaust the principles on which the properties and energies of the living solids depend, we see the reason why excessive joy may become prejudicial to the functions of the body. It leaves languor and lassitude after it, like the effects of intoxicification from strong wine; and in many cases it is known to exhaust the two principles of life so much as to induce swooning and fainting ... If the ideas and their impressions which originally excited the passion of joy, continue to act with great force, after their first action, dreadful effects often ensue. I have known a temporary delirium arise from this cause.

Sir Alexander Crichton (1798: III.2.170)

* *Address for correspondence:* Departments of Philosophy and Psychiatry & Faculty of Health Sciences, University of Western Ontario, London, Ontario, Canada N6A 3K7. Email: charland@uwo.ca

Four themes

There seems to be little controversy over the fact that Alexander Crichton (1763–1856) made important contributions to the history of psychiatry (Berrios, 1996: 91–3; Goshen, 1967; Hunter & MacAlpine, 1964: 469, 559; Weiner, 1990). His main publication, the *Inquiry into the Nature and Origin of Mental Derangement* (Crichton, 1798) is said to have brought him considerable medical acclaim during his lifetime (Tansey, 1984: 244–5). Indeed, both Philippe Pinel (1745–1826) and Jean-Etienne Esquirol (1772–1840) repeatedly acknowledge his influence on their thought – a debt that commentators agree is significant (Goldstein, 2001: 95–6; Pigeaud 2001: 175–7; Weiner, 1999: 300–2). What especially impressed Pinel and Esquirol about Crichton's work was his rigorous physiological account of the psychopathology of the passions. It provided important additional support for their own physiologically-oriented views about how the passions figure in mental illness.¹

What is surprising is that despite this accolade there still exists no substantial exegesis of the *Inquiry* or its theory of the passions (Weiner, 1990: 338). But this really is a pioneering work, as Pinel and Esquirol clearly realized. Indeed, it is probably the most important medical treatise on the physiology of passions since Galen in the second century A.D. (see Galen, 1952, 1964). In scientific detail and erudition, it easily surpasses all preceding physiological work in the area, including Descartes' landmark essay, *The Passions of the Soul* (1990). Crichton's theory of the passions is primarily physiological. However, it is also very philosophically informed and rich in references to the writings of Locke, Hume and Reid. Yet Crichton is singularly absent from even the best philosophical scholarship devoted to this historical period (Dixon, 2003). He is also notably absent from leading historical studies of the history of physiology and neurology (Hall, 1975; Spillane, 1981). Accordingly, our task will be to revisit this classic work in order to highlight the reasons why it earned a reputation for innovation in its own time, and why the overall theoretical position it recommends is still relevant today.

The selective exegesis that follows will be centred on four themes. First, there is Crichton's attempt to provide a purely physiological psychopathology of the passions and, in particular, his innovative discussion of the principle of irritability, a central concept in the history of physiology. Second, Crichton's elaboration of the physiological doctrine of irritability can be viewed as an interesting precursor of the modern scientific idea of valence, or 'polarity'; this is the view that affective posits like passions and emotions can be classified as positive or negative. Third, irritability and valence lie behind another innovative feature of Crichton's theory of the passions. Anticipating Karl Jaspers, he proposes a psychopathology of the passions that is formulated primarily in terms of their physiological *form* rather than their ideational meaningful *content*.² Finally, we examine Crichton's insistence that psychiatry must steer clear of ethical and other 'moral' psychological and social dimensions of the passions. As we shall see, this an issue on which Pinel strongly disagrees. In stark contrast to

his Scottish colleague, Pinel argues that the ethical character of the passions is an inextricable feature of their psychopathology and their ‘moral treatment’.

Mere phenomena

That the psychopathology of the passions should have nothing to do with ethics or other ‘moral’ considerations is a point on which Crichton is adamant. He brazenly asserts it in a powerful opening salvo at the beginning of his discussion of the passions in Book III of the *Inquiry*:

The passions are to be considered, in a medical point of view, as part of our natural constitution, which is to be examined with the eye of the natural historian, and the spirit and impartiality of a philosopher. It is of no concern in this work whether the passions be esteemed natural or unnatural, or moral or immoral affections. They are mere phenomena, the natural causes of which are to be inquired into ... (III.1.99)

In these opening remarks, Crichton also makes it clear that it is fundamentally in virtue of their physiological nature that the passions influence our mental and physical health:

[T]hey produce constant effects on our corporeal frame, and change the state of our health, sometimes occasioning dreadful distempers, sometimes freeing us from them – these facts are to be carefully observed, examined, and enumerated. They produce beneficial and injurious effects on the faculties of the mind, sometimes exalting them, sometimes occasioning temporary derangement, and permanent ruin ... (III.1.99)

Thus, in the *Inquiry*, Crichton’s interest in the passions is ‘principally confined to a physiological and medical point of view’ (III.1.99). He grants that ‘moralists and metaphysicians have written copiously on the subject’, but counters that their views ‘are of no use whatever to a medical inquirer, except inasmuch as he himself is concerned in the morals of the community he lives in’ (III.1.98). To these observations he adds the claim that ‘the moral effects of the passions throw no light on the diseases of the mind’ (III.1.133). To understand those diseases, we must turn to physiology. One of Crichton’s historical innovations was to resort to the principle of irritability, an important physiological concept of the time, in order to explain the physiological basis of healthy and diseased passions. His contribution in this area is not only historically important, since it was innovative for his time, but it also anticipates and resonates with contemporary efforts to understand valence, the idea that affective states have a positive or negative ‘polarity’.

Irritability

Crichton’s *Inquiry* is divided into three books. Book I deals with ‘the physical or corporeal causes of delirium and other derangements of mind’ (xiv). Book II is

concerned with ‘the various morbid changes which each faculty of the human mind is subject to, either from over-training, or from an original or acquired disproportionate activity’ (xiv). Finally, Book III deals with the passions ‘as causes of mental derangement, and on their modifications and corporeal effects’ (III.1.94).

Book III consists of seven chapters. Their titles are revealing and important for a full appreciation of the scope of Crichton’s psychopathology of the passions. They are as follows: 1. Analysis of Human Action, being an Inquiry into the Source of the Passions; 2. On Joy, its modifications, and Effects; 3. On Grief, and Melancholy, their modifications and Effects; 4. On Fear, its modifications and Effects; 5. On Anger, its modifications and Effects; 6. On Love, its modifications and Effects. We can already discern from these titles that each of the major passions cited in the chapter headings will have various ‘modifications’. Those modifications of the basic passionial *forms* sometimes include other derivative passions – a crucial point to which we will return.

The tripartite organization of the *Inquiry* is supposed to be founded on ‘the analogy which the causes of mental derangement have with each other’ (xiii). What all those causes share is ultimately a basis in physiology; in particular, all have to do with ‘the general offices and properties of living solids’ (xv). Physiology in this case is tantamount to ‘natural history of the human mind’ (xvi). The physiological focus of Crichton’s *Inquiry* explains why Book I starts with a detailed discussion of ‘the doctrines of irritability and sensibility’ (xv). These two physiological explanatory ‘principles’ provide the foundation of the analysis of the passions that follows. Irritability is especially important, as it is intimately tied to viscerality, the central locus of the passions. This is a point on which both Pinel and Esquirol agree wholeheartedly with Crichton.

Chapter 1 of Book I is entirely devoted to explaining ‘the principle of irritability and its laws’ (I.1.1). This doctrine has a long and complicated history (Hall, 1975, 1: 396–403; 2: 67–73; Steinke, 2005). It recurs, often in different forms, at varying junctures in the history of psychiatry (Goldstein, 2001: 250–3; Pigeaud 2001: 224; Porter, 1987: 180–2; Shorter, 1993: 28; Weiner, 1999: 316). Pinel even wrote an essay dedicated to the topic in his *Nosographie philosophique* (Weiner, 1999: 316; see also Pinel, 1809: xxvii–xxix, 58). Some experts argue that the concept of irritability can be traced back to Plato and is especially important in Galen’s physiology (Temkin, 1964). However, it is most often associated with the names of later thinkers, such as Glisson, and especially Von Haller (Pagel, 1967). Both Haller and Glysson (*sic*) are cited as important defenders of the doctrine of irritability by Crichton. He notes that while Haller is perhaps most famous for the concept, credit is also due to Glisson, who developed it earlier (I.1.1–3). Very loosely, irritability is a special principle of motion that is said to govern the actions of certain kinds of human and animal fibre and, in some views, even plant fibres. In Glisson’s work, irritability includes actions of the heart, the arteries, as well as the stomach and intestines. All are constituted by ‘irritable fibre’ and as such are subject to the principle of irritability and its laws (I.1.2).

Perhaps the most plausible experimental historical observation behind the decision to posit a 'principle of irritability' is the manner in which some human and animal muscle fibre can contract in the presence of a stimulus even in the absence of a functioning nervous system. For example, in decorticate organisms where the nervous system is no longer intact, muscle contractions can still be induced by application of a stimulus, even though the organism cannot sense or feel the stimulus (I.1.2). The example is also given of muscle contractions that occur in sleep but which are not consciously felt. In these cases, there is motion but no sensation. Therefore, there must be a principle of motion other than sensation, and not all human tissues or fibres require sensation for their motion. This is irritability. It is important to note that the principle of irritability is not simply the claim that there can be muscular motion without nervous sensation or energy. In addition, some adherents of the principle of irritability argue that irritability is also distinct from mechanical motion and chemical action. Crichton endorses this last view, and tells us that irritability is a 'faculty of motion which is totally distinct from that produced by mechanical impulse, or chemical attraction' (I.1.5).

The rise and fall of the concept of irritability in the history of physiology is a fascinating story filled with ingenious experiments and sometimes extravagant claims. Crichton says that after its exposition by Haller, the hypothesis 'was soon spread through all the schools in Europe' (I.1.3). However, he also notes that it encountered opposition. Some questioned just how separate and distinct muscular irritability was from nervous sensation and response, a charge to which Crichton responds with ingenious rebuttals of his own, citing examples of plant and animal forms that move even though totally devoid of a nervous system (I.1.5–8). He also attempts to improve upon the irritability hypothesis by citing examples of irritable motion that do not always require the medium of muscle fibre. For example, he argues that the iris and uterus in humans, and the structures of many plants, are irritable, even though they hardly resemble human muscle fibre (I.1.11). One of Crichton's other contributions to the doctrine of irritability is his defence of the thesis that there are nine 'laws' or 'axioms' of irritability (I.1.13–52). He claims that his laws of irritability 'are partly new axioms, partly modifications' of earlier work in the area by his contemporaries, Girtanner and Fontana (I.1.12).

Crichton's axioms of irritability deal with various motions and reactions of physiological systems and organs, such as the bladder, stomach, heart, blood, gall bladder, arteries, veins, kidneys, urethra. Those organs and body parts all count as components of the 'viscera' (I.1.12). As such, they are all subject to irritable motion. Of special interest is the interdependent and holistic character of the various irritable parts in humans and animals. For example, in discussing Axiom IV, Crichton (I.1.20) writes:

All the irritable parts of animals are to be considered as forming one general system, connected by a particular contrivance, by means of which

the influence of certain stimuli, although only local in their application, is diffused throughout the whole body. The connecting medium alluded to is the brain and nervous system. There is no irritable part of the human body whatever, into the structure of which some fibres of nerves do not enter, and by their means, therefore, various impressions are transmitted to them from distant places; thus the impressions of various desires cause the whole muscular system to be increased in action.

The allusion to the role of the nervous system in this description of irritability might be thought to contradict a claim made earlier. Is it not the case that irritable motion can take place in the *absence* of nervous energy and sensation? And are not irritability and sensation *separate* systems? But there is no contradiction. Crichton resolves the tension by distinguishing between the operation of irritability and sensation in whole and healthy organisms, and their operation under special artificially induced experimental conditions, or subsequent to naturally diseased lesions. He points out that in healthy or 'perfect' animals, 'nervous and muscular matter are intimately blended together in the greater number of irritable parts' (I.1.5). Indeed, he notes that 'if in the examination of the question we were to confine our observations to the appearances that occur in perfect animals, we should, perhaps, never arrive at the truth' (I.1.5). So, even though irritability and sensation often operate jointly and apparently seamlessly, experimentally they can be shown to be different systems.

Two additional aspects of Crichton's conception of irritability should be mentioned. The first is that in virtue of their essentially visceral nature, the passions are subject to the laws of irritability. Indeed, Crichton goes to great lengths to explain the workings of the passions in terms of the irritability of their underlying body parts and systems. This is the key to his psychopathology of the passions. Irritability is also central to the healthy natural functioning of the passions. Indeed, irritability is the most important explanatory concept in Crichton's psychopathology of the passions. As he says, 'a vast variety of natural and diseased actions are explained by application of the second and third laws of irritability' (I.1.16). Moreover, in the discussion of Axiom IV, he writes that 'each irritable part has stimuli which are peculiar to it; and which are intended to support its natural action' (I.1.18). More specifically:

Each irritable part of an animal, such as its heart, stomach, gall bladder, arteries, absorbents, muscles, &c., is to be considered a distinct irritable body, having a susceptibility of being acted on by certain stimuli, which in these parts preserve a healthy action, but which if applied to others would produce an irregular one, and consequent disease; thus the blood is the natural stimulus to the heart, arteries and veins, but if this fluid by any accident gets into the stomach, it produces sickness and vomiting, acting as a powerful stimulus to that viscus. (I.1.19)

Some of Crichton's Axioms of irritability allude to his belief that it is a 'fine subtle kind of matter, secreted from certain vessels' and that 'it depends on the

circulation of the blood' (I.1.30). This makes it possible to talk of diminished or excessive quantities of irritability that can be stored or absent from various irritable parts of the body. That in turn leads to the observation that irritability must sometimes be restored if it has been exhausted. One way this happens is by letting the irritable part in question rest, without being further stimulated, as stated in Axiom I (I.1.13). Axiom II, in fact, states that 'each irritable part has a certain portion or quantity of the principle of irritability, which is natural to it, part of which it loses during action, or from the action of stimuli' (I.1.14). Note that it is also possible that absence of stimulation can lead to the diminishment in the irritable properties of a part, as stated in Axiom IX (I.1.30).

What exactly is this special irritable fluid? And in virtue of what kind of fluid or structure do we say that a bodily part or organism is susceptible of irritability or not? On these matters, Crichton is refreshingly candid. He simply confesses that 'if irritability be connected with any peculiar structure, we are quite ignorant of what that peculiar structure is' (I.1.11). And on the question of what the true nature of the principle of irritability might be, he provides us with a brief review of the latest research in the area (I.1.34–52). Ultimately, the debate is left open and the exact nature of irritability is left unresolved. It is no surprise, then, that in concluding his discussion of the principle of irritability and its laws, Crichton (I.1.50–1) confesses that:

The manner in which stimuli act, and produce the contraction of muscular and other irritable parts of the body, are phenomena which must awaken the spirit of inquiry in every man who has the slightest tincture of it in his mental composition; but it is not by crude and hasty conjectures that we can arrive at a knowledge of these mysterious intricacies of nature.

Valence

One crucial characteristic of irritability is implicit in Crichton's account of that concept but is never explicitly mentioned as such. This is the idea that the irritable responses and reactions of various tissues and body parts are typically *valenced*. Thus, some responses are characterized as 'aversive' and others as 'receptive'. More generally, irritable responses and reactions can be classified as either 'negative' or 'positive'; for example, they might be classified as negative when they are aversive, and 'positive' when they are receptive. In physiological terms, irritable tissue and fibre may either recoil from or reject a given stimulus object or substance, or it accepts it and accommodates it in some way. This very basic idea of a positive or negative reaction lies at the heart of the concept of valence or 'polarity'.

In its modern usage, valence is usually associated with developments in chemistry and physics and is now also widely employed in contemporary psychology and neuroscience (Colombetti, 2005). However, the fact that the term itself is not used in earlier texts does not mean that the underlying concept is not implicitly present. In Crichton's physiology and psychopathology

of the passions, the concept of valence is clearly present. Valence in this first instance arises from irritability. What is especially interesting about this early physiological precursor of valence is that it does not require the subjective experience of feeling. Usually, valence is said to be a property of felt affect; of subjective experience (Charland, 2005). But irritability-based valence is not like this. There is, however, another kind of valence alluded to in Crichton's work; it is subjectively felt. Valence in this second sense derives from nervous sensibility and not irritability. We begin our examination of the place of valence in Crichton's work with the irritability-based variety of valence. This is an area where Crichton's contributions are not only historically important in their own right, but also relevant to current debates over whether valence can be conscious or unconscious (Winkelman, Berridge and Wilbarger, 2005).

Valence is associated with irritability in a wide range of historical discussions concerned with irritability, although the term is not mentioned. For example, in an important review of the history of irritability, Temkin (1964: 306) notes that 'as Glisson sees it, irritation is the experience by some part of the body of a molesting sensation with ensuing attempts to remove the offending agent'. He goes on to say that 'for both Galen and Glisson irritation as a biological phenomenon is akin to the psychological reaction of man in a state of provocation and anger' (p. 311). In developing this thesis, Temkin quotes the following illustrative passages from Galen:

[T]here must exist in almost all parts of the animal a certain inclination towards, or, so to speak, an appetite for their own special quality, and an aversion to, or, as it were, a hatred of things of the foreign quality. And it is natural that when they feel an inclination, they should attract, and that when they feel aversion they should expel. (p. 311)

[T]he stomach, uterus, and bladders possess certain inborn faculties which are retentive of their own proper qualities and eliminative of those that are foreign. (p. 315)

This evidence leads Temkin to conclude that, according to Galen, the natural faculties are designed to attract what is familiar and reject what is foreign (p. 315). This is a good example of a valenced reaction composed of 'positive' (attraction) and 'negative' (rejection) elements.

The above example of how valence arises out of irritability relates particularly to Galen and Glisson. It deals primarily with the irritable properties of internal organs and systems. On the other hand, Haller's discussion of the irritability of muscle fibre, which Crichton also alludes to, presents a different case (I.1.1–4, 17). Again, valence is involved, although the term is not mentioned. However, in this case irritability needs to be understood in terms of contractility. In Haller's experiments, the contractility of muscle tissue given a stimulus can be interpreted as either an aversive or an assimilative response, which suggests a reaction with 'positive' and 'negative' poles. Noxious stimuli

elicit aversive reactions, while positive ones do not. Here again then, we find an intimate link between the operation of the principle of irritability and the notion of valence.

In contrast to the kind of valence that arises out of irritability, which is 'positive' or 'negative' but normally not subjectively felt or experienced, valence can also arise through the operations of the nervous system. The typical example in this case involves valenced reactions that are interpreted in terms of felt pain or pleasure. This is a second sense of valence that is present in Crichton's work. It is especially evident in his effort to classify the passions in terms of their underlying pleasurable or painful feelings.

It is noteworthy that Locke, who was an important influence on Crichton in the area of the passions, implicitly employs this second concept of valence in his account of the passions. He says that 'pleasure and pain, and that which causes them, Good and Evil, are the hinges on which our passions turn' (Locke, 1975: 229). Locke then goes on to characterize pleasure and pain in more general terms, namely, 'delight' and 'uneasiness'. He is careful to point out that we should not concern ourselves too much with the names of these concepts. Thus, 'whether we call it Satisfaction, Delight, Pleasure, Happiness *etc.* on the one side; or Uneasiness, Trouble, Pain, Torment, Anguish, Misery *etc.* on the other, they are still but different degrees of the same thing, and belong to the *Ideas of Pleasure and Pain, Delight or Uneasiness*' (Locke, 1975: 128–9; original italics).

Now it is seldom stressed that, according to Locke, the Understanding, and indeed, the mind in general, are suffused with affectivity.³ Yet Locke (1975: 128) is quite clear on the point:

Delight, or Uneasiness, one or the other of them join themselves to almost all our Ideas, both of Sensation and Reflection: And there is scarce any affection of our Senses from without, any retired thought of our Mind within, which is not able to produce in us Pleasure or Pain. (original italics)

Note that according to Locke it is not only the contents of the mind that are affectively laden. The sensations of the body are equally valent and are therefore also affectively charged and modified. Significantly, pleasure and pain are involved in both the organization of the body and the mind, so that there are corporeal and mental varieties of each (Locke, 1975: 128–9).

Many of these same ideas reoccur in Crichton's discussion of the passions. According to him, pain and pleasure 'enter more or less into the composition of all our passions' (I.3.120). Like Locke, he appears to believe that all the passions hinge on pain or pleasure. Thus, in his view all the passions are valenced. A crucial aspect of Crichton's account of the passions is that our bodies – 'our wonderful economy' – are naturally constituted and organized to respond in specifically valenced ways, to specific kinds of stimuli, under specific conditions (I.3.134). The various nerves and irritable parts of the body all have naturally

preset limits that determine how and when they will respond to stimuli. This predetermined natural order also defines what stimuli count as 'positive' or 'negative' and when. Thus, the same external cause can count as a 'positive' stimulus that leads to pleasure in one body part, but not in another; and over time the same stimulus applied to an individual body part can be transformed from 'positive' to 'negative' depending on whether it is present in excessive or limited quantities (I.3.131–6). It is therefore a mistake to think that pain and pleasure are 'widely different from each other'. For in reality they 'are similar, not only in their nature, but also in their causes' (I.3.117).

Evidently, in many respects Crichton's account of the passions follows the direction set by Locke. Crichton puts Locke's psychological insights on the valence of the passions on a sound physiological basis. This he does by tracing the origins of valence to feelings of corporeal pleasure and pain generated by the external senses of the nervous system. In Crichton's theory, the external senses are:

the means by which we are connected with the things around us; they direct us in our operations as agents, and warn us of the agency of others; many of our pleasures and pains arise from the impressions which are made on them; and all our knowledge of the external world, and of the bodies which compose and inhabit it, can only be gained through their means. (I.3.110)

On this view, pain and pleasure are initially bodily and corporeal in nature. One consequence of this is that 'the affection of the nerves ... which occasions in us the feeling of pain, is always to be considered as a physical derangement of its structure' (I.3.122). It follows that it is false to say that 'all pain is only an affection of the mind' (I.3.118). It is equally incorrect to say that 'it is the mind which suffers' (I.3.118).

In a healthy organism, the irritable parts of the body normally function in combination with the nervous system. In fact, there are 'laws of sensibility' that are very similar to those of irritability' (I.2.69). These involve the concept of a 'nervous fluid' which 'conveys the impressions of external bodies to the brain' (I.2.69; I.3.127). Thus, in addition to irritable motion, nervous energy is a source of motion in the body. Nerves and their sensibility are equally involved in the operations of the passions. According to Crichton, the nervous system also plays a role in determining the positive and negative character of the passions – their valence. This it does by infusing and associating them with pleasure and pain. However, depending on whether it arises out of irritability or nervous sensibility, valence can assume a different character. In the case of nervous sensibility, it is usually subjectively felt as pain or pleasure. But in the case of irritability, valence can operate below the threshold of consciousness, yet still direct the organism and its various bodily organs, systems, muscles and fibres, towards or away from various stimuli.

Passion

It is now possible to state Crichton's definition of a passion. One of the most important passages is worth quoting in full:

When our animal desires and aversions are opposed, or not gratified, new desires and aversions arise, which are attended with painful and pleasurable feelings that are totally distinct from those which gave birth to the primary desire or aversion. The feelings which accompany these are felt about the praecordia, and are, at times, of such a powerful nature as often to destroy all the operations of cool reason, and to throw the human frame into the most violent agitation and disorder. These new desires and aversions thus characterized by pleasurable or powerful feelings at the praecordia are called passions. (III.1.112–13)

The passions, then, are essentially *feelings*. Specifically, they are 'peculiar feelings at the praecordia' (III.1.113). The praecordia in this case is understood to be the region of the chest cavity encompassing 'particularly the heart, diaphragm, and organs of respiration' (III.1.120). It is here that pleasure and pain are experienced, which explains why the heart is so intimately linked to passion in our folklore. Thus it is often said that the heart 'jumps for joy', 'is full', 'is ready to break' or is 'light' (III.1.120). It is also reflected in the fact that the heart 'is commonly regarded as the source of moral action' (III.1.121). This is also why it is common to say that the heart is the 'great sufferer in our passions' (III.1.121).

Crichton tells us that 'all the desires and aversions which are called passions are distinguished from mere animal desires by the clearness of the object foreseen' (III.1.114). To this he adds that fact that, in human passions, the object foreseen can serve as both the *object* and *cause* of the passion: it is 'both the one which gave rise to the passion, and also the one against which, or toward which, all voluntary actions that arise in the passion are directed' (III.3.114). It is therefore necessary to distinguish the fact that passions can have an object at which they are directed, and whether this object can also serve as a cause of that passion. The objects of primary animal desires do not serve as the cause of those same desires. On the contrary, the 'exciting cause of animal desire is always an obscure feeling, and quite distinct from the object against which, or towards which our will is directed' (III.3.114).

It is interesting to speculate whether Crichton's distinction between the causes and objects of the passions may have been inspired by Hume, who makes the same point in his discussion of the passions in Book II of his *Treatise* (Hume, 2000). Crichton was very familiar with Hume's work, and he refers to his Scottish contemporary regularly throughout the *Inquiry*. Hume is sometimes classified as a feeling theorist (Lyons, 1980). However, his thesis that passions like pride involve a 'double relation of ideas and impressions' appears to negate any strict identification of passions with feelings. The same issue arises for Crichton. He claims that the passions are feelings, but at the same time he

appears to introduce cognitive constituents into his account when he talks of 'objects foreseen'. This is probably why he also says that '[a] passion is a very complicated affection' (III.1.128). It is unfortunately impossible to resolve this difficult interpretive question here. Suffice it to say that it still persists in many sectors of emotion science and the philosophy of emotion today (Charland, 1997).

It is important to realize that, although Crichton's theory of the passions is ultimately physiological, he also acknowledges they can have mental causes:

It is well known that the same passions may arise from a mental cause, as well as a corporeal one. Thus grief and anger may arise not only from personal pain, but from ideal pain. Many passions, indeed, arise solely from mental causes, as piety, charity, benevolence &c. (III.1.115)

Passions, then, can 'arise from abstract ideas' (III.1.116). However, it is equally true that in humans passions arise 'from the feelings which accompany animal desires and aversions' (III.1.116). But how can an idea, or simply the uttering of a word, give rise to a passion, a specific class of bodily feelings in the praecordia? The key here is the valenced nature of the feelings that attach to ideas. Based on whether those feelings are pleasurable or painful, we experience desires and aversions to those ideas and the objects they are directed at, which in turn cause other painful and pleasurable feelings depending on the input of the environment.

All this is possible because feelings of pain and pleasure are originally and fundamentally physical. They 'belong to our corporeal frame' and 'take their origins in our nerves, and are felt in them alone' (III.1.116). Mental pleasures are derivative. Admittedly, as Crichton states, 'they do not arise from what are commonly considered as physical causes, but from moral and intellectual ones; I mean ideas' (III.1.117). Nevertheless, both mental pains and pleasures are felt in the praecordia. Thus in the end, even 'mental' pains and pleasures are corporeal. In sum, 'the internal gratifications, and uneasinesses, which we call mental, are all felt about the praecordia; and strictly speaking, therefore, are sensual (III.1.119).

Emotion

We have come some way in extrapolating Crichton's definition of the passions. Now it is incumbent upon us to consider how he proposes to distinguish passion from 'emotion'. This is a difficult exegetical question on which it is hard to generalize with consistency and precision. To start with, there are varying usages of these terms, as Crichton (III.1.114–15) recognizes:

Before we proceed further, let it be remarked that the word *emotion* is often used, not only in conversation, but also in philosophical works, as an equivalent expression for passion. At other times, it is intended to denote

the disorder which prevails in the mind, and at others, the corporeal feelings about the praecordia, which are also called feelings of the heart.

Among those who sometimes equated ‘passion’ and ‘emotion’ was Descartes (1990). Hume also employed both terms and may have been inspired by Descartes in adopting the term ‘emotion’ (Dixon, 2003: 108). One clue for understanding Crichton’s distinction between passions and emotions can be gleaned from the following passage:

The emotions of our mind which arise from the desire, or aversion, peculiar to each passion, generally terminate in a species of judgment, which forms the *motive* of the voluntary actions that take place, and which actions constitute the moral effects of the passion. The emotions of the mind, on the other hand, or thoughts which arise in the mind from the immediate perception, or foresight of the object which causes the passion, produce sensorial impressions which are sent, independently of volition, to various parts of our frame, and throw them into disorder. (III.1.125–6)

The presence or absence of the will and a volitional element thus appears to be central to Crichton’s distinction between passions and emotions. The distinction seems to lie in the fact that in passions, but not emotions, the will is excited into action by a ‘distinct object’ of desire or aversion. Consider the following passage:

Sorrow and grief are terms which are often indiscriminately applied to many kinds of painful emotions; and hence it appears that they cannot, with propriety, be considered as distinct passions. Indeed, sorrow scarcely has a claim to be classed with the passions, as that word is commonly employed, for in many cases of sorrow, and anguish, the will is not excited into action by any distinct object. But, in the painful passions, strictly so called, such as anger and rage, jealousy and envy, there is always an object of aversion which excites volition into powerful action. (III.3.177)

Apparently, emotions are quite literally *motions*. They are turbulences of the mind and body caused by passions. At one point, an emotion is referred to as the ‘animal effect’ of a passion (III.1.126). The idea behind this is that emotions are the *involuntary* effects ‘arising from the sudden perception of the objects of the passion’ (III.1.127). Passions, on the other hand, have a *voluntary* element. Different persons will judge and act differently when they experience a given passion, since ‘the effects of the passions on the will are different, not only in different people, but in the same person according as he is placed in different circumstances’ (III.1.128). However, underlying these differences in how passions are voluntarily expressed in action, which hinge on predisposing factors and context, there is a shared common involuntary physiological reaction profile for each passion. This is the emotion.

Emotions, then, are not caused by an object of desire or aversion. They ‘arise from the desire or aversion peculiar to each passion’ (III.1.125). Passions,

on the other hand, do require an object of desire or aversion. In passions the will is excited into action, normally a specific course of action. This is not the case with emotions, which are simply involuntarily felt as turbulences. In this account, passions may appear to be more fundamental, since it is they that cause emotions and not the reverse. However, it is emotions which appear to reveal the shared animal core and the physiological key to each passion. In the end, it is hard to say which one is more fundamental than the other.

Despite his best efforts explicitly to distinguish 'passions' and 'emotions', Crichton's use of those terms is ultimately quite perplexing and apparently very idiosyncratic. It is hard to make consistent sense of his numerous pronouncements in the area. One plausible explanation for this exegetical imbroglio is that writers of this period were faced with novel terminological options and choices in the area of affectivity. This was a time when the ancient affective vocabulary of the 'passions' with its religious and ethical associated forms of life, was being gradually replaced by a new, mostly secular, scientific vocabulary that referred instead to 'emotions' (Dixon, 2003; Rorty, 1982).

Consider, for example, the history of pride. In the writings of Augustine it was a passion that was inextricably ethical and religiously tied to sin. Yet if we look ahead to Hume, pride reappeared in secular guise, almost entirely stripped of its ancient religious ethical character. It was a concept of psychological theory which served as a foundation for the practical concept of the self (Rorty, 1990). Now it is true that pride in Hume was not yet really an 'emotion' in the modern sense. It was still loosely tied to morals and referred to as a 'passion'. But by the time we get to philosophical and scientific writers in the middle of the nineteenth century, the transition from ethical passions to secular emotions was largely complete (Dixon 2003). Of course, this transition from passions to emotions was neither uniform nor consistent across different writers and epochs. But certainly a convincing case can be made that such a transfiguration of affectivity has taken place in some segments of the history of the passions.⁴

In this history, writers like Hume appeared to be uncertain about how exactly to distinguish passions from emotions and why. Crichton is more self-conscious about the issue and explicitly attempts to distinguish the two. However, the resulting distinction is not entirely clear, either in content or in motivation. This also is an area that merits further exegetical work. For the time being, whatever the final verdict may be on the nature and plausibility of Crichton's distinction between passions and emotions, it is the passions that lie at the centre of his *Inquiry*. He proposes a psychopathology of the passions, not emotions.

Psychopathology

Crichton's psychopathology of the passions builds on his valenced conception of the passions. Painful and pleasurable feelings are the common denominators of the classification that defines the contours of his psychopathology. Thus there are 'pleasurable passions' (III.2.141, 152, 165) which are associated

with ‘mental pleasures’ (III.2.140), and ‘painful passions’ (III.3.177) which are associated with ‘mental pain’ (III.3.173, 174).

In this valenced typology of the passions, Crichton presents us with a set of what appear to be basic passions, each of which has various ‘modifications’. These basic passions, most of which figure in chapter headings, are joy (III.2), grief and sorrow (III.3), fear (III.4), anger (III.5) and love (III.6). The basic passions appear to be physiological category-types out of which more specialized token passions are derived. In this scheme, classification is ultimately by homology rather than analogy or resemblance. It is in terms of their physiological origins in certain physiological category-types that the various passions are to be individuated. Common sense analogies and surface resemblances among the passions are not to be trusted in so far as medicine is concerned. What the passions ‘really’ are, and *which* passions there ‘really’ are, is ultimately determined by the homology of their physiology, not common sense psychology. In this respect, Crichton’s theory and classification and theory of the passions anticipate the individuation by homology proposed by several present-day philosophers of emotion (Charland, 2002; Elster, 1999; Griffiths, 1997).

Crichton stresses the fact that our passionate life is largely ineffable. He emphasizes that, ‘surely, it need not be remarked, that our painful as well as pleasurable feelings are too numerous, and too variously modified, to be described by words’ (III.2.151, 175). This is why it is more important to focus on physiology than words. Different words for allegedly different passions sometimes obscure the medical fact that, physiologically, their effects are of the same kind, with differences simply being a function of degree and intensity. Another way of making the same point is that Crichton is more interested in the ‘medical’ characteristics of the passions and their influence on the body, than their ‘moral’ characteristics and how they are labelled by poets, artists and ‘moralists’ (III.2.142). In keeping with his commitment to keep ethics and morality out of medicine, he maintains that ‘the moral effects of the passions throw no light on diseases of the mind’ (III.1.133). The key is physiology, which is the province of medicine and the basis of Crichton’s new mental science.

Let us consider joy. Its modifications are variously referred to as ‘self-satisfaction’, ‘hope’, ‘gratitude’, ‘compassion’, ‘admiration’, ‘regard’, ‘esteem’ and ‘platonic love’ (III.2.143–4). Additional modifications include ‘emotions of friendship’, ‘love’, ‘benevolence’ and all the kind and smiling passions (III.2.149). Now all these passions and their correlative emotions denote pleasurable feelings of various degrees of strength and intensity. Moralists and artists are inclined to label and catalogue them differently using these words as labels, but from a medical point of view, this is misleading. The reason is that, from the medical point of view, it is the underlying bodily states that are especially of interest.

Medically, the joyful passions and their modifications are more alike than their ‘moral’ labels suggest. With reference to these modifications of pleasurable

feeling, Crichton states that, 'considered in a medical sense, I shall treat them in the aggregate' (III.2.142). This physiological orientation yields a classification of pleasurable passions into two classes: 'the tranquil or serene ones, and the lively or exhilarating ones' (III.2.152). Therefore, the joyful passions can be classified in different ways. In 'moral' terms, they can be individuated and identified as separate passions. But in 'medical' terms, all those passions share a common generic physiological profile, and vary only in degree and intensity. Both classifications are useful, as long as they are used appropriately. Note that philosophically this is not a programme that proposes to reduce the mental aspects of the passions to their physiological correlates, or a programme that promises to eliminate the 'moral' vocabulary of the passions and replace it with a physiological lexicon. No effort is made to discourage us from talking about the mental causes or effects of the passions, although in the end – from a medical point of view – it is only their physiology that counts.

The effects of joy and its various modifications on the body are considerable and Crichton dwells on these at length. Joy typically causes increased action in the heart and arteries, which also affects the organs of respiration (III.2.159). Even weaker kinds of joy increase the action of the heart, as can be evidenced by heightened pulse and 'increased lustre of the eyes' (III. 2.158). The effects of joy also extend to the stomach, intestine, and other viscera (III.2.160). In moderation, joy 'contributes to good health' (III.2.160). It produces 'tonic effects on every viscus and on the whole of our frame' (III.2.160). Tranquil joy is especially beneficial for the 'cure of chronic complaints' and even melancholy can sometimes be cured by joy (III.2.161). Finally, joy also has positive effects on the mind, since 'it seems to dispose all its faculties to easy and ready action, stimulating it, as it were, in the same way as it does the brain' (III.2.163). Attention is sharper and judgement is quicker and more accurate. However, when joy is too extreme, these assets turn into liabilities, and both attention and judgement can suffer. So while in moderation joy is usually conducive to good mental and physical health, when it is extreme it can also lead to negative physical and mental consequences.

On the negative side, there are modifications of joy that can cause ill health and even insanity. Pride and vanity, both of which arise from hope, a modification of joy, are especially worrisome examples. Both are founded on erroneous judgement (III.2.166). As such, they expose people to frequent disappointments, which can cause insanity in persons 'not endowed with much fortitude, and resolution' (III.2.167). Pride and vanity can also lead to mania and melancholy, because of their link to heightened expectations and desires that may collapse when frustrated (III.2.169). A central principle and mechanism in all these transitions from the mental aspects of joy to its physical consequences is irritability. Ideas productive of joy and its modifications act like 'direct' and 'strong' stimuli on the nervous and irritable fibre, which upsets their natural balance. In sudden transitions from extreme grief to extreme joy, these disruptions 'are at all times dangerous, and often mortal' (III.2.171).

Like mental pleasures, mental pains can also be classified into several basic physiological prototypes which give rise to modifications that may or may not be labelled as passions (III.3.174). The basic prototypes of mental pains are grief and sorrow (III.3.173). Again, we are reminded of the vague and largely arbitrary nature of the terms we select to identify different degrees of mental suffering (III.3.174). These include 'distress', 'sorrow', 'deep sorrow', 'grief', 'melancholy', 'excessive grief', 'anguish' and 'despair' (III.3.175). There are additional special terms for sorrow and grief that are experienced due to a past event. These include 'repentance', 'contrition' and 'remorse'. Crichton states that 'we have no distinct appellations for the painful emotions we experience on account of a present event, which interrupts our happiness, except it be sudden or frightful; in which case we apply the word "terror"' (III.3.176). Sorrows that arise from some future event we normally label as 'fear'. Further modifications of fear include 'anxiety', 'apprehension' and 'dread' (III.3.176).

Irritability is again central to the negative effects of mental pains and their effects on the body. The heart is said to be 'full' of sorrow, and Crichton notes that in painful passions 'the heart, and aorta, and its larger vessels, and the whole system of the pulmonary artery, become loaded and distended with blood' (III.3.178, 190–1). We are also told that:

The general corporeal effect of all the modifications of grief and sorrow, is a torpor in every irritable part, especially in the circulating and absorbent system; hence the paleness of the countenance, the coldness of extremities, the contraction and shrinking of the skin, and general surface of the body; the smallness and slowness of the pulse, the want of appetite, the deficiency of muscular force, and the sense of general languor, which overspreads the whole frame. (III.3.178)

On the whole, these negative passions exhaust the irritability of the system, which is why they are often referred to as 'depressing' or 'debilitating' (III.3.182–3). Extreme negative passions of this sort can lead to sleep and eventually coma and catalepsy (III.3.182).

When grief or sorrow persist for a long time, melancholy can result, and ultimately delirium (III.3.185). Melancholy consists primarily in 'dejection of mind' or 'constant sadness' and an aberration of reason in which 'melancholy ideas' predominate (III.3.185). A fixed and uniform focus of thought on the cause of grief is also sometimes said to be characteristic of melancholy (III.3.187). The end result of such mental suffering is sometimes 'despair, suicide, and murder' (III.3.186). Melancholy can also lead to 'furious delirium' or mania (III.3.219). Temperament is an important predisposing cause of melancholia (III.3.223). Indeed, some individuals are 'greatly disposed to this complaint' (III.3.227). In this last regard, it is noteworthy that predisposing factors are potentially involved in all passions. Crichton tells us that pleasurable and painful feelings 'are, at times, the result of the peculiar or constitutional susceptibility of feeling of our nerves; a susceptibility constantly changing by age, by education, by diet, climate, exercise, health, or disease' (III.2.151).

Autonomy

There is a crucial underlying assumption behind Crichton's psychopathology of the passions which needs to be highlighted. It marks a radical and surprising point of divergence between historical writers on the passions like Crichton, Hume and Descartes, and contemporary philosophers of emotion. Perhaps it also helps to explain the frustrating lack of progress in the psychopathology of affectivity (Berrios, 1985). Part of the problem here lies with affective theoretical posits themselves: 'passions', 'emotions', 'feelings' and 'sentiments'. Defining these terms and stipulating operational criteria for their scientific use has proven to be an elusive goal for psychopathologists. To this problem we can add the question of the theoretical status of terms like 'emotion' and 'passion' as domain names. Is emotion a distinct, autonomous domain of scientific inquiry, like cognition? In the language of philosophers, is emotion a natural kind?

Most contemporary philosophers of emotion deny that the emotions form a unified scientific domain (Charland, 2002). In the terminology of modern philosophy of science, they deny that emotion – or the emotions – form a natural kind. Translated into the language of the passions, this is tantamount to the claim that passion – or the passions – do not form a natural kind. Some modern philosophers have even gone so far as to argue that modern science ought to rid itself of the category 'emotion' altogether (Griffiths, 1997). If we accept or assume this philosophical conclusion, then there is not much scientifically for a psychopathology of emotion or passion to be about. Strictly speaking, there is no distinct, specialized scientific domain that corresponds to those terms. This is an area where historical figures like Crichton have much to teach us.

In the *Inquiry*, Crichton touches on this issue when he notes that Hume deserves credit for not having fallen into the trap of thinking that associations between ideas and associations between passions are of the same kind:

Mr. Hume confines his observations to the association of ideas alone, and it is probable that he saw in a clearer light than what his critics seem to have done, that the association that takes place between many passions, and passions and emotions, was of a very different nature from that which takes place between ideas ... (II.4.344)

The observation is fundamental. It reflects Crichton's belief that the passions constitute a special physiological system of their own, governed by 'principles very different from those which regulate our ideas' (II.4.344–5). In other words, the passions form an autonomous scientific explanatory domain of their own, governed by its own special laws and regularities. In the language of modern philosophy of emotion, the passions form a 'natural kind'.

The autonomous nomological character of the passions also implicates the emotions. Crichton tells us that 'every passion has its emotions, as every disease has its symptoms' (II.4.345). He goes on to add that, 'the relationship which exists between them is similar to the general one of a cause producing its

peculiar effect'. Herein lies one fundamental difference between the principles that govern the association of ideas and those that govern the passions and their emotions. The difference lies in the fact that 'if an emotion follows a passion, it does not do so on the principle of an association, but on one which resembles the motion of a body when impelled by another' (II.4.345). Therefore, the 'association' between a passion and its emotions differs from the association between an idea and other ideas. This makes the two domains very different scientifically.

Conclusion

We saw at the outset of this discussion that Crichton was adamant about the fact that medical science must steer clear of ethical and other 'moral' aspects of the passions. His theory of the passions was thoroughly physiological, although he did not deny that it is sometimes useful to speak of their mental causes and effects. But in the end it is only in virtue of their embodied physiological character that the passions exercise their influence on our health. Medical treatment of the passions on this view is likely to hinge on physiological interventions only, although it is hard to say this with certainty since in the *Inquiry* Crichton wrote virtually nothing about treatment. What can be said is that, given the exclusion of the 'moral' from the medical in Crichton's work, 'moral treatment' was not a legitimate treatment option for him, at least so far as medicine was concerned.

The situation was very different with Pinel, who was very much concerned with developing and evaluating effective treatment methods. As mentioned above, Pinel was sympathetic to the physiological focus of Crichton's psychopathology of the passions. But on the question of treatment, the French doctor took a very different stance from that of his Scottish colleague (Charland, 2008). Certainly, Pinel considered treatments that might be called physiological – purgatives, laxatives, etc. – but his main recommendation for treatment was 'moral treatment' (*traitement moral*). This incorporated both the psychological and social 'moral' dimensions of the passions (*le moral*) and sometimes even their ethical dimensions (*la morale*).⁵ Pinel even went so far as to recommend that his readers ought to read Cicero's *Tusculan Disputations*, a key work in the history of Stoic ethics (Pinel 1801: 80–81; 1809: 12, n.1). Because of its psychological and ethical emphasis, Pinel's overall programme for the psychopathology of the passions pointed towards social psychiatry and clinical psychotherapy. Crichton's scientific programme, on the other hand, seems more consonant with biological psychiatry and psychopharmacology.

Now there can be no doubt that Pinel is the more famous of our two protagonists, but on this last question there may be grounds to question that assessment. Ironically, despite his best scientific intentions, Pinel was still a believer in the ancient passions. To be sure, like Crichton, he adopted a physiological foundation for the passions. He even agreed on the importance of

studying them in abstraction from their moral dimensions (Pinel, 1809: xxii). But at the same time he insisted that medicine must address the passions as 'moral' phenomena. Not so with Crichton.⁶ He was the first truly to desacralize the passions in the name of medicine in order to accommodate them in a purely biological psychopathology of mental illness. Perhaps then it is he who should be considered the real scientific innovator.

Notes

1. The exact extent of Crichton's influence on Pinel is a matter of some controversy. He translated a chapter of Crichton's *Inquiry* for the French medical journal, *Recueil Périodique de la Littérature médicale étrangère*, and contributed an analysis of that work to the same volume (Weiner, 1999: 300, 354). Although this proves that Pinel was undoubtedly aware of Crichton's work prior to the publication of the first edition of his *Traité*, it has been argued that his main ideas in the *Traité* were well formed before this time. Thus, Weiner (1999: 301) claims that the question of the influence of Crichton on Pinel's first *Traité* does not really arise: '*la question d'une influence de Crichton sur la première édition du Traité ne se pose pas vraiment*'. But that certainly does not mean there was no influence at all. Pinel (1801: xxi–xl) devotes almost 20 pages to Crichton's work in the introduction to the first edition of the *Traité*. In the second edition, this is cut back to roughly two pages (Pinel, 1809). This has led some commentators to speculate on Pinel's desire to distance himself from his rivals and ingratiate himself to future generations of medical historians (Weiner, 1999: 307).
2. 'Perceptions, ideas, judgments, feelings, drives, self-awareness, are all forms of psychic phenomena; they denote a particular mode of existence in which content is presented to us' (Jaspers, 1997: 58–9).
3. Susan James (1997: 97) argues that the same is true of Descartes, and that according to him 'our thinking is in general passionate'.
4. Not everyone concurs that the distinction between 'passions' and 'emotions' is so central. For example, in his philosophical study of medieval emotions, Simo Knuttila (2006: 3) says: 'I use the terms 'passion' and 'emotion' without intending any important difference in meaning ...'. He notes that, 'contrary to some authors, I believe that the emotional phenomena to which past philosophers refer are similar to those we are familiar with, though this does not hold of all emotions'. In *Emotions and Peace of Mind*, Richard Sorabji adopts a different position. His purpose is to inquire into Stoic and early Christian 'emotions'. He employs the English term 'emotion' to render the Greek *pathé* on the grounds that 'passion is thought of as a very strong form of emotion' (Sorabji, 2000: 17). Evidently, this is a question where individual cases need to be examined and argued carefully.
5. Only one of Pinel's commentators seems to appreciate the depth and implications of this aspect of Pinel's thought (Pigeaud, 2001: 245, 268–89); but see Berrios (2006: 476, n.37) for a contrasting interpretation.
6. There appears to be a tension in Crichton's thought in this area: his reliance on psychology conflicts with his focus on physiology. According to historian Roy Porter (2003: 312), Crichton 'held that the philosophy of mind formed an essential component of understanding madness'. But how can we reconcile this reliance on psychology with Crichton's explicit dismissal of 'moral' considerations elsewhere in the *Inquiry*? One way to resolve the tension might be to credit Crichton with the belief that 'the natural sciences by themselves cannot create new categories of mental disorder, nor can any somatic footprint be sufficient to define mental disorder' (Berrios, 2006: 470). Thus, psychology may be

necessary for nosology and diagnosis, but it is neither necessary nor sufficient for the more strictly medical, causal explanatory aspects of psychopathology. Note that Porter (2003: 313) also states that Crichton played an important role in the 'coming conception of madness as psychological disorder'. This certainly is true of Pinel. But it seems flatly inconsistent with the spirit of Crichton's psychopathology.

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