

SPINOZA AND NEUROPSYCHOLOGY

SPINOZA AND NEUROPSYCHOLOGY:

A COMPARISON OF THEORIES
OF EMOTION, METHODOLOGY AND ONTOLOGY

By

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A Thesis

Submitted to the School of Graduate Studies
in Partial Fulfillment of the Requirements
for the Degree
Master of Arts

McMaster University

1989

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MASTER OF ARTS (1989)
(PHILOSOPHY)

MCMASTER UNIVERSITY
Hamilton, Ontario

TITLE: Spinoza and neuropsychology:
a comparison of theories
of emotion, methodology and ontology

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SUPERVISOR: Professor J. Bristol

NUMBER OF PAGES: vii, 137.

Abstract

This paper deals with the mind-body problem in Spinoza's Ethics and in neuro- or physiological psychology. The thesis is twofold: a) that the psychology offered by Spinoza has much in common with neuropsychology; b) that Spinoza's methodology is in some ways superior to the predominant neuro-scientific one. I also argue, though not conclusively, the superiority of Spinoza's ontology. The discussion is grounded in a comparison of the respective psychologies of emotion.

Acknowledgements

Above all, my family for sustaining me.

Over the years of working on this paper I have had the opportunity to talk with many people about it - my thanks to all. The stimulation was vital. I want to thank in particular some who read parts of the paper or commented on arguments: Veanne Anderson, Muriel Deschenes, Fraser Forsythe, Janina Hornosty, Iain Jull, Bruce Mawson, Mary-Pat Mcandrews, Dorothy Papineau, Robert Pepper-Smith, Janet Rice, and Steven Whitaker. Two people have been especially helpful in forcing me to think through details: Don Hart, and my wife, Linda Pannell. With both I had many long, frustrating, wonderful arguments about Spinoza and infinite other subjects.

Thanks are also due to various teachers and fellow students both at McMaster and at Erindale College of the University of Toronto. In particular I wish to thank Professor Nagel for the fine introduction to Spinoza; Prof. Canfield for conversations on the nature (or non-nature) of the self, and also the present of Spinoza's Opera; Prof. Ajzenstat for his encouragement and helpful references and the course on philosophy and science; Prof. Shalom for the course on problems of body/mind in psychology; Prof. Simpson for careful reading, criticism and timely prodding; and Prof. Bristol for many excellent comments. I have recently had the privilege of studying with Prof. David Savan, for which I am very thankful.

Lastly I want to thank again my parents, my wife, and my children Nina and Aaron, for all their patience.

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All science, from physics to physiology, is a function of its philosophical presuppositions, but psychology is more vulnerable than others to the effect of misconception in fundamental matters because the object of its study is after all the human mind and the nature of human thought, and it is very easy for philosophic ideas about the soul, for example, or about determinism and freewill, to affect the main lines of the theory. As long as the ideas are implicit they are dangerous; make them explicit and perhaps they can be defused.
Donald Hebb, Essay on Mind, p.2

They ... need not wait for others to refute them; the foe is in their own household, as the saying goes, and, like that queer fellow Eurycles, they carry about with them wherever they go a voice in their own bellies to contradict them. Plato, Sophist (252c)

Introduction

This thesis is an attempt to come to grips with the mind-body problem through two scientific systems - Spinoza's psychology, and neuro-psychology. I will argue that Spinoza's psychology is very similar to the neuro-sciences, especially to neuro-psychology. I will also argue that in some important ways Spinoza's (neuro-) science is the better of the two. The analysis of the emotions provides the main frame of the paper, in which differences of method and of conception of the mind's relation to the body become evident. For it is clear that the analysis of the emotions requires a method. To these methods, and to consequent emotional theory, the mind/body problem is of crucial importance. Due to the nature of Spinoza's work, which thoroughly embraces and advocates an ethical world-view, I have found it necessary to deal also with the place of scientific investigation in developing human freedom or, as Spinoza says, virtue. This latter problem is too large a project to be developed here, but because of its importance to the discussion of the other three concerns I have included some remarks on it.

The first chapter, titled The problem of mind in scientific investigation, presents a brief overview of the topics of the paper, outlining a couple of the historical developments of psychology, and presenting an argument against a science

founded on an epistemological monism, which is the idea that the world may be conceived in only one way - as material or objective, or subjective as in Berkeley. This leads to a discussion of language as a part of method, in which I argue that language usage is dependent on conception, and that our use of language is evidence that the world exists for us - is conceived by us - in two ways, which Spinoza calls extended and thinking. If this is so, then there must in a complete science be two levels of discourse. The discussion of the mind-body problem arises out of this, beginning in chapter two.

Titled Spinoza on the emotions, chapter two argues that Spinoza's epistemology can't be understood without knowing his psychology of the emotions. In his work on the emotions Spinoza puts to use his notion that we must have two levels of discourse in science. To the twin questions: "What is mind? What is body?", he says that though we need to speak of an event in both mental and physical terms, we should be aware that the event is one thing conceived in two ways. Also discussed in this chapter are some problems taken up again in chapter 4, including a controversial reading of Spinoza's views on consciousness.

The third chapter, titled Emotions and the neurosciences, is a selection of positions taken in recent times, which show that the neurosciences, despite the precedent setting work of James, try to avoid speaking of the emotions in non-physiological ways. I argue that James is quite similar to Spinoza in his treatment of the emotions. Though influenced by James,

neuropsychology has not entirely followed him, particularly in ontology, and has consequently become involved in some stiff methodological problems: the result being that an understanding of the emotions present in James, and evident also in Spinoza, has been lost. In this and the following chapter I also argue that in the neuro-sciences there exists a largely covert dualism of language, which when made obvious provides further evidence for a double aspect ontological theory.

The final chapter, titled Spinoza and the neurosciences, compares some of the important or controversial issues on both sides - the mind-brain problem, and the relation between drives, purpose, will and intention. I contend that Spinoza's method, though lacking the detail of modern physiological psychology, is superior to the prevailing trends in neuropsychology. Some psychologists still openly use a "two-level-of-discourse" investigation - this is what Spinoza wants and what, I argue, is necessary.

The reader may ask: why so closely consider the emotions if the aim is to deal with the mind-body problem in the neuro-sciences and in Spinoza? Why not move the discussion to a more general level, in which emotions may be mentioned, but which has more emphasis on the neurochemical working of the central nervous system, on the one hand, and the problems of consciousness, intentionality, subjectivity, meaning, etc., on the other?

The emotions are appropriate to the discussion because they are generally applicable to these problems. Spinoza's mind-

body (ontological) unity sees its most explicit expression in the work on the emotions. There he shows the workings of the body to be correlated with thinking. This correlation of physical and mental processes is also the case with the more abstract elements of our thinking, though less clearly so. For example our imagining and our speaking, in mind, are often confusedly taken to be ideas in themselves. Another example is willing, which so often is thought to have no relation to the physical that, in an intellectual climate of materialism/behaviourism, willing has been thought not to exist whatsoever. The emotions, however, are recognized as bodily as well as mental events. This can be easily seen in the field of psychology, wherein the great controversy over the nature of the mind and body has shown itself in the way that study of emotional processes continually forces some sort of account "from within". Though the mental has been barred from the portals of science, one may still find it within the halls, wearing disguises supplied by the guardians of the gates.

The double account of emotional processes is evident whichever pole - subjective or objective, mental or physical - is emphasized. The neurophysiologists locate emotions in the brain (thereby engendering a mind-brain equivalence and problem); Descartes locates them in the body (he at least does this of the passions). The double nature is yet evident: never fully abandoned, never fully recognized.

Chapter one

The problem of mind in a scientific psychology

The adoption of the scientific method by psychology implies that the elements of psychology are all measurable. Subjectivity, if mind is construed as such, is thus off limits in psychological investigation. But if subjectivity is necessary in order to investigate anything, then psychology has within itself an element which is not seemingly measurable. This is a problem for which there have been a variety of attempted solutions. In this chapter I first discuss some responses to the problem: the early behaviourism of Watson, and Hebb's neuropsychological behaviourism.¹ I argue that both make fundamental errors in method, arising from their view that psychology must rid itself of subjective or mental terms. Turning to Spinoza, I argue that mental terms are necessary in psychology, and must be used in conjunction with physiological terms, because, as Spinoza says, mind and body are one thing, conceived in two different ways. From this follows a discussion on the difference between language usage and conception.

A prime reason for behaviourism lay in the rejection of the sterile psychology of the late 19th and early 20th century. The latter psychology was at that time noted for its introspective investigation of the associations of thoughts,

introspective investigation of the associations of thoughts, feelings, sensations². Behaviourism rejects introspection, and along with it the belief in a thing able to see into itself - a mind, spirit or soul. A fact, for these thinkers and researchers, is observable, definite - experimental in the sense of seeking to determine what altering one clearly defined piece of a puzzle would do to the rest of the pieces. The idea of mind, which had seemed elusive³, is thereby judged illusory.

Donald Hebb argues that there has been a misconstrual of the theories which originated behaviourism⁴. He takes exception to the argument that Watson, who did the first consistent work in this area, was misusing the available data in order to postulate that there is no mind. Hebb argues that the theories were consistent with then-current information on sensation and response. In the measurement of the time between the stimulus and the response there appeared to be no lag. From this Watson could legitimately infer that nothing important occurred between the sensory impulses' journey into the skull and the response impulses' journey back. All that occurred, presumably, was a switching from one track to another. If this were so, any references to the workings of the mind would be superfluous, for they would add nothing to the explanation of the observable physical events.

The discovery that there was indeed a lag between stimulus and response led to new theories which sought to take into account the likely inference that the brain mediates in

conclusion, and continued the practice of explaining behaviour in terms of the stimulus-response model. To hold this view means that any explanation for a change in a thing points out a change in the stimulus. Change in behaviour could not be taken to originate in the thing. No thoughts or motivations could be referred to, except in terms of observable behaviours and their situational stimuli. Thus the expression, "The man runs because he is late", must be made in terms of, say, a train station, a clock, a man in uniform standing on a platform blowing a whistle, as well as the runner⁵.

But other forms of behaviourism became more pragmatic, and while for a time words like 'drive' and 'image' were forbidden in serious usage, the requirement of accounting both for the lag in response and for the common words of mental processes meant that such terms were ceaselessly re-entering the literature with slight alteration in usage or form⁶. Increasing tolerance even made it possible to say, as Lanyon and Lanyon do in their book Behavior Therapy(1977), that thoughts are 'kinds of behavior'⁷. As Professor Bristol has said, this is of course the only alternative, for behaviourists, to the implausible alternative - that there are no thoughts⁸.

Thus, recent trends in behaviouristic psychology are to explore some of the avenues closed off by the original behaviourist agenda' and there is now much reference to the goings-on in the 'black-box', as Watson called the brain. Studies in cognitive psychology, and the rise of influence of

Studies in cognitive psychology, and the rise of influence of neuropsychology, show the field concerning itself more and more with inner processes. Neuropsychology is a discipline which joins (among others) physiological and cognitive psychology with neuro-anatomy to attempt a comprehensive study of behaviour. Though neuropsychological explanations have an old history - one may find such in Descartes' pinning the locus of the homunculus on the pineal gland - the field as a systematic endeavour only came to be practiced at all after the discovery of the lag in response. One early practitioner - Lashley - gained his reputation as a debunker of the prevailing strict behaviourism. His student, Donald Hebb, carried this through to the first extensive work dealing with inner processes - the Organization of Behavior, the subtitle of which claimed the book to be a work of neuropsychology. Though still calling himself a behaviourist Hebb defines psychology not as "the study of behavior" but as the study of "the underlying processes of behavior"⁹. Instead of eliminating such terms as 'attention', 'image' and so forth, Hebb and others explain these words in terms of brain processes. Hebb says,

The analysis of animal intelligence, by controlled experiment, has been a slow process. Mainly, the trouble has been to make the transition from an earlier subjective psychology (resorting freely to the notion of "mind" or conscious awareness as an agent in behavior) to an objective theory of neural₁₀ action, without oversimplifying the facts.

So what might be called the elements of the mind - images, drives, desires and so forth - are to be considered as brain

processes. The mind, for Hebb, is the sum or organization of these processes. Since behaviour depends on brain processes, the brain is the organizer, and as such is all that we can properly call 'mind'.

Much of psychology has followed this lead, looking to neuropsychology for answers to perplexing problems. For these, then, the framework for speaking about mind is to speak of brain processes. Mind and brain are thus seen to be identical. This is, at any rate, one of the neuropsychological arguments for the identification of mind with brain.

The reasons for this kind of move are diverse. A continuum between early behaviourism and varieties such as Hebb's is to be found in the rejection of any animistic elements in psychological accounts. For example, Hebb's notion of mind being the sum of brain processes is very similar to James' notion that thinking is the interplay of the instincts. Hebb has simply changed the terms from mental to physical - James studies the mind directly, introspectively, and Hebb seeks to counter this approach. Hebb targets this because of the overt dualism of mind and body which James advocates. This dualism is advocated still by some prominent neuropsychologists¹¹, and Hebb is concerned with these as well. Another - Hebb thinks a more significant - target is the unrecognized dualism in animistic language as used by those supposedly working in a behavioristic neuropsychology. Hebb says, "not to know the implication of what one is saying can be philosophically dangerous"¹². Animistic language, he says, is

adopted by people unclear of proper method, or good science, neither of which require any use of animistic ideas in guiding experimentation, nor also such use in explaining results.

The struggle against animism, or, as might be said, ontological dualism, from the position of an ontological monism, has led to an epistemological monism - a materialism 'grounded' in the scientific method. This must mean that there can be only one truly scientific way of thinking or speaking about the world, and therefore this method constitutes a reduction of all languages into that of the physical¹³. In particular for the concerns of this paper, the 'two universes of discourse' - the languages of mind and of body - are reduced to the language of physical events. Moreover, what is observed about physical events is regarded as definite, as a fact. Both these points may be questioned.

Nietzsche, to name someone from another stream of thinking, repudiates positivism because it finds only facts in phenomena. He holds that it is precisely facts which do not exist - all that exists are interpretations¹⁴. That is an extreme subjectivism which we need not blindly accept. But to repudiate the positivism known as behaviourism we don't have to go so far as Nietzsche. If we accept that interpretation is necessary even to consider an event, then we may say that behaviourism is faulty because it does not allow for interpretation, at least not officially, because there is no 'official' interpreter.

In the same way, the attempt to reduce the language of mind to that of physical events is also deficient. I will argue here that the neuropsychological project involves a contradiction, as does the behaviourist stimulus-response model. With the latter, the claim that the lack of lag between stimulus and response is sufficient reason to dismiss the efficacy of brain processes (and consequently the subject), fails to account for the act of perception¹⁵. The contradiction here is that perception is the necessary condition for making the judgement that perception is a superfluous concept: were it not for perception of the measuring instruments, no judgement could be made. So any adequate psychology must account for perception, because it is a given of our methodology. By covertly employing perception, behaviourist psychology embraces a subjective element, which it overtly claims to be unnecessary.

While the behaviourist attempts to ignore the brain in order to avoid the concepts of perception, consciousness, subject, and even judgement, the neurosciences attempt to explore these things in terms of mechanism and brain process. Their existence for us initially - as they are in their own right - is covert. With both behaviourism and the neurosciences, the avoidance of mental or subjective terms is accompanied by the use of the experiences to which the terms refer. This is a contradiction in methodology. Psychological methodology ought to include the idea that our experience is our behaviour as it is known to us. By behaviour we ought to mean the functioning of

the nervous system as well as more easily observed phenomena, but we must not forget that these observations are made from our point of view: they are not merely observations of other peoples behaviours, but are of our own. The psychology which forgets this leaves unanswered the question of why experience seems so different from the scientific account of experience. But most will admit that science's mandate is to explain human behaviour, and clearly the behaviouristic methodology leaves out the intelligible aspect of our behaviour which is knowing.

By contrast to the positivistic account, I argue here that in order to study consciousness in terms of neuro-biology, one must first be conscious. Only then can one recognize consciousness in another¹⁶. One can then explore the physiological changes which occur in the individual, and from the conjunction of these observations, describe the mechanisms of consciousness. Science generally and psychology particularly need to deal with the mind and the terms it evokes - "consciousness", "motivation", "image" and so on - because the mind is there as part of the method from the beginning. A psychology which avoids this is gutted. As Professor Shalom has said, science, with all its questions, must be able to situate the being who can ask the questions¹⁷.

Many psychologists hold that mental and physical explanations both belong in good scientific explanations. Two such who have had much influence are Fechner and James. Fechner originated the technique of measuring psychological processes in

a physiological setting, called psycho-physics. He is now mentioned in the introductory texts only in this regard. However, he also wrote a book called Nanna or The soul life of plants, in which he proposes that all living things, and even the earth and the other planets, have souls¹⁸. James, in his groundbreaking Principles of Psychology, held that for psychology both mental and physical analysis is required, and moreover that the two ought to dove-tail, such that one is mapped on to the other.¹⁹ Nor is it necessary that such a view entail an ontological dualism, as the example of James shows. Considering these and other psychologists, it is at least arguable that mental and physical explanations may co-exist without giving way to an ontological dualism. Such is the case in Spinoza's psychology.

As with the neurosciences, Spinoza's psychology makes an identity assertion, but not an identity of mind with brain - rather of mind with body. Mind-brain identity, in its pure form, implies that the workings of the brain constitute the workings of the mind such that mental terms must at all times be explained in the context of, or eliminated from, a physiological psychology²⁰. Spinoza by contrast says that the mind and body are different ways of looking at or conceiving the same thing' and that both ways are necessary for a complete or accurate picture²¹. This 'thing' may itself be looked at in several ways: we may call it a singular thing, an individual, a soul or self - in metaphysical terms it is a particular mode of substance.

Spinoza's epistemology has it that we conceive a thing as thinking and as extending. The extending substance is the world of bodies, and the thinking substance is the world of minds. Thus, Spinoza is an ontological monist and an epistemological dualist - that is, Spinoza holds the world to be fundamentally one, a unit which we know in two ways.

Some have suggested that we need not fuss over which sort of language we use to describe events²², whether mentalistic terms or physical, provided we understand that we refer to the body. This is a kind of epiphenomenalism²³, a condition in which mind, in T.H. Huxley's evocative phrase, is a helpless spectator. But for Spinoza the mind's ability to think is the same as the body's power to act - if the spectator is helpless, it is because nothing can be done, at least so far as it knows.

For Spinoza, we at once (or necessarily) conceive the world in two ways (2p1&2): The understanding of a thing lies in knowledge of both mental and physical causes(1a4)²⁴. This knowledge may occur apart from language use, since for Spinoza, words are not ideas(2p49c.sch.). Conception, we may say, is therefore different from language use. From this it is relevant to ask: If we were to have a complete language of physical events - which for Spinoza would occur if we were able to find their causes - would we then understand these events?

Some might say that Spinoza would answer 'yes' to the question, since he says that a physical thing must be explained in terms of physical things:

...in so far as [things] are considered as modes of Extension, the order of the whole of nature must be explained through the attribute of Extension alone. (2p7sch)

In the same note, however, Spinoza speaks of the identity of mind and body.

A mode of extension and the idea of that mode are one and the same thing.

This identity is later referred to in the context of how we are to understand nature, or the union of mind and body. He says, because mind and body are one, we must consider the body in order to understand this union.

No one will be able to understand it (i.e., the union of Mind and Body] adequately, or distinctly, unless he first knows adequately the nature of our Body.(2p13sch)

2p7 itself reads:

The order and connection of ideas is the same as the order and connection of things, and vice-versa.

Thus, since mind cannot be understood without taking account of body, then body cannot be understood without considering mind. To understand a physical event is not merely to know its causal relations, but also to know the union of the physical event with a mental event. Lachterman says

...the unicity of method seems to force us to the inference that there is, in the end, only one philosophical science, capturing within its scope classes of entities that might otherwise have seemed generically and irreducibly diverse²⁵ in respect to their scientific knowability.

Thus for Spinoza a complete physical account of events would not be enough to understand the event. The physiological account

needs to be situated psychologically, if it is to be understood; this it cannot do on its own terms.

Gordon Nagel makes a convincing argument for this in The Structure of Experience²⁶. He argues that those things which are taken to be objective and scientific (i.e., behaviourism or positivism) are like maps of the world. They describe relations between things without making reference to any one individual or point of view. Such descriptions are characterized by the use of tenseless language. Ordinary maps may tell you that

The Boots is just down from Marks and Spencer's, Yonge Street runs north from Front Street to Richmond Hill, etc. But such maps also have an arrow saying "You are here." The need for the arrow is obvious. By studying the map, one can come to know where everything on it is; and yet not have any idea of how to find any of it²⁷.

Nagel goes on to argue that amnesiacs could examine a description (map) of their own life, and not know it to be theirs, even though it included details of their present existence - for they can perceive their surroundings, but the correspondence of this information with the information obtained from the detailed and objective account of their own life may yet not give them the knowledge of "who they are, where they are, or what time it is"²⁸. What they need, says Nagel, is for someone to come along and tell them "you are here, right at this time."²⁹

Nagel argues this for the purpose of showing, like Spinoza, "...the inadequacy of either mode of representation on its own." He says,

It matters to us as agents to know where (and when) we stand in the scheme of things. There is

little advantage in knowing one is invited to a certain place for Christmas dinner if one does not also know what day Christmas falls and how to get to the place one is invited to. Well, one presumably has (or can look up) the address (= a context neutral description of the location), and we know that Christmas is December 25th; but that knowledge is useless on its own. We need to know where it is from here, and when it is from now.p.239

This can be likened to Spinoza's argument that we need to conceive of the world both in thought and in extension - the first is needed in order to situate the second. Their unity is found in their mutual dependence. (I will go further into this point in chapter two.)

In regards to individuals this kind of thinking is found in his psychology of emotions.

...each one governs everything from his affect...[this] indeed, show[s] clearly that both the decision of the Mind and the determination of the Body by nature exist together --or rather are one and the same thing, which we call a decision when it is considered under, and explained through, the attribute of Thought, and which we call a determination when it is considered under the attribute of Extension and deduced from the laws of motion and rest.(3p3)

It is therefore necessary to have two languages for an analysis of the emotions, for we must speak of them both as physiological events, and as subjective experiences. Emotions exist or occur in one thing - the body which acts, the mind which thinks: the person who experiences. A language of experience of the body is a reflective language: it is of our experience of (our) experience. We know that we are physical, Spinoza says at 2p13; from this knowing, we know that we are thinking. At once we

conceive ourselves dually. To say, for example, that I am experiencing C fibers firing in my brain, is to use two modes of thinking together: The language "C-fibre firing" is of extension, or what is called by Spinoza, 'motion and rest'(2a1). The other expression is of thought. So to the question, "Is experience a physical process, or is it of a physical process?", Spinoza would answer, "Both".

Those who know Spinoza's psychology, especially his psychology of emotions, will inevitably try to regard it in the light of modern work on the subject. His contribution may be seen to be impressive, but also undeveloped. He lacks such refined language or conceptual tools as hormones, summation of potential in neurons, and brain centres for particular activities or behaviours. Modern psychology, however, is undeveloped in respect to some elements of method, as I think Spinoza would see it. If I am right, then descriptions of emotions and other mentalistic terms must be made along with a more objective approach to observation, and must be a key element in a complete psychology.

The neuro-sciences have, in the main, rejected the point of view that the subjective is suited for scientific study³⁰ - the denial of introspection is an example of this³¹. The thesis that the world is measurable matter may have given way in some places to the idea that the world is at least a measurable, or statistically describable, something. But this thesis is yet another attempt to be objective in scientific discourse, which

amounts to claiming that nothing can be said to be certain unless it satisfies the criteria of dispassionate, measurable, testable, free-from-value-judgement, data. The simplest argument against this would be to echo Spinoza and say that we know that we know³² - but that would be too simple. Though appropriate in the discussion of method, such an argument would be unable to deal with the ontology of the problem. This is for Spinoza the problem of substance, and for neuropsychology the problem of the nature of the physical world, and for both, the nature of the thing. A claim made here is that the problem of situating the thing which asks the questions (or, if one prefers, the problem of the origin of the question) is what makes the nature of the physical world a problem. As Professor Nagel says, in order to do anything you have to know where you are. The failure of an epistemological monism to do this is what makes Spinoza's psychology (and other psychologies which employ an epistemological dualism) worthy of examination. In the examination we may be able to come to some better appreciation of the nature of the world. This does not mean that we ought to embrace the concept of substance. It does mean, at least to me, that some kind of neutral (ontological) monism is to be preferred.

A psychology founded on neutral monism must be anti-positivistic because it must include a subjective element. Note that I am not implying that it must include a subject, for this too is a problem for the area. Jung, in his Psychological Types,

says this

...at bottom we have absolutely no criteria that could help us to form a judgement of a world which was unassimilable by the subject....By overvaluing our capacity for objective cognition we repress the importance of the subjective factor, which simply means a denial of the subject.

Whether it means the denial of the subject is questionable, but at any rate it is evident that it means the denial of the subjective.

Concerning the subject, Spinoza does employ the similar concept of individual, but the individual, as we will see in the following chapter, is an unusual concept, and perhaps not equivalent to subject - for the nature of the individual is such that the mind is the same as the body, which is a concept grasping both subjective and objective. Science has the goal of explaining all of our experience, says Spinoza, and must include the experience of body and of mind.

I have tried in this chapter to establish the need for an epistemological dualism to accompany any ontological monism - be it a substance philosophy or materialism or whatever (while some may find these arguments as yet unconvincing, my purpose here is mainly to introduce what is to be expounded on below). I have also argued that this need imposes certain methodological constraints on a psychology: the problem of mind is not resolved either by ignoring mind or by saying that brain processes are in effect mental. The purpose of the foregoing discussion is to lay the ground for the following three chapters. The next will discuss Spinoza's psychology and the importance of the emotions,

and in this will consider the relation of mental and physical terms.

Chapter two

Spinoza on the emotions

I want now to outline Spinoza's exploration of the emotions, emphasizing the way he uses thinking and extension as two realms of discourse. We will need to look at the epistemological and ontological aspects of Spinoza's philosophy and their bearing on the psychology.

The relationship between thinking and extension is perhaps the crucial factor in considering the theory of the emotions and the theory of freedom which follows. The organization of the Ethics is partly explained in the demonstration of the relationship. The book begins with a chapter on metaphysics, in which Spinoza shows that substance is one¹, universal or infinite. He calls substance both God and Nature. This monism contains two significant dualities. One is the distinction made between active nature (natura naturans, or nature naturing) and passive nature (natura naturata, or nature natured) - this may also be construed as the distinction between substance and particular things, or modes. In part two, which is on the nature of the mind, Spinoza brings out the other major duality within substance - the distinction between thinking and extension². To understand Nature and ourselves we must account for the unity of substance, which is God. We are called upon to

regard Nature as thinking, and ourselves as natural.

Part 2 continues this line of thinking in discussing the nature of particular bodies and particular minds, introducing the crucial idea that "the order and connection of things is the same as the order and connection of ideas" (2p7). This proposition is based on the thesis that thinking and extension are two different ways of conceiving substance. The implication of the latter proposition is that God, to speak very loosely, has a body as well as a mind. The implication of 2p7 is therefore that the mind is identical with the body. The person is therefore to be seen as thinking and/or extended.

This is further drawn out in part 3, where Spinoza begins to talk more at length of the emotions. In what follows I will argue that the emotions are kinds of knowledge - judgments of the world and of ourselves in various relations. Spinoza says that other writers deal with the emotions as the basis of human weakness. He also does this. But he sees - as the set up of the Ethics suggests - that emotions must be studied if one is to gain self-knowledge and acquire virtue. Seeing one's true nature one comes to see that the mind is the body conceived under a different aspect. This self-realization is necessarily emotional, since human essence is emotional (def of the emotions, part 3)³.

At this point Spinoza's argument becomes more obviously ethical. He demonstrates a connection between our emotional essence and the human essence which is also knowledge(5p7). Then

he says that to the extent that we know ourselves, we act with ourselves as cause. In this he ties our knowledge of ourselves, of other things and of God, to our knowledge of our physical nature, and thus to what we are capable of doing. Because doing something involves being emotional, if we would do well, we should understand our emotions.

Spinoza says that our knowledge of the physical aspects of emotions lies in knowing them as modifications of the body, or affections. What we call an affect or emotion is in Spinoza's language a modification of the body or a way in which the body is. One question to be considered is whether all modifications of the body are emotional. This question may also be construed as whether intellect can be separate from will.

If all modifications are emotional, then emotions likewise permeate all thinking. The analysis of every thought should proceed in terms of emotional response at least in part. The reverse is also true, in such a way that an investigation of metaphysics and epistemology is necessary in order to do ethics⁴. Thus, one of the aims of the Ethics is to show how metaphysical conceptions may be employed practically. He does this mainly in parts 3, 4, and 5 (On the nature and origin of the emotions, Of human bondage, Of human freedom). In these parts he studies the emotions as ideas and as modifications of the body, as modes of thought and modes of extension, and as passive and active. The next three sections of this paper, called Mind, Body, and Mind, body and emotion, will discuss the possibility that the unity of

thought and extension are only understood by seeing how they are manifested in the emotions - that is, the way in which modifications of the body are emotional, or ideas are willing.

Mind

Before dealing explicitly with emotions and ideas, I must say something about thinking and the usage of the term 'idea'.

In saying "Humans think" (2a2)⁵, Spinoza is asserting something in contrast to Descartes' cogito: By saying "I think", Descartes proves that he has a mind, and subsequently is hard-pressed to show how he can know his body. Spinoza avoids this problem by being able to say "We think"⁶. He can do this because he links knowledge of the mind with knowledge of the body, and he is able to say the plural rather than the singular because of this. I will now explore the way in which he makes this argument.

That Spinoza calls "Homo cogitat" an axiom means the idea is self evident, known to us immediately, intuitively, without the necessity of proof (that is, that the idea is clear and distinct). Despite this he does prove it, though indirectly by scattering the points of the argument about, as I shall outline. Spinoza is implicitly asserting that if we knew our nature, we would know that mind is everywhere - that all things are mind as well as body. This idea grows out of the notion that the mind and the body are the same thing seen in two different attributes. Spinoza recognized that the notion of mind/body

unity would not find easy acceptance, and spends much time explicating it.

To say "we think" must be strange to modern ears swayed by arguments of the privacy of mental phenomena, which have it that the only way I can suppose that others think is by looking at myself and then assuming that what has the same form as myself probably also feels as I do. A passage in Spinoza seems to support this argument. He says that we know others only via ideas of the body's affections (2p26)⁷, that is, through ourselves. The nature of the other is something which we could never clearly see. If one can't be certain that others have minds in this condition, unable to have direct experience of another's mind - which seems on the face of it to be impossible⁸ - then one cannot know that others think.

This conclusion does not hold for Spinoza, for he says that if one understands the nature of the union of mind and body, then the experience of one's body enables one to see that other's also think. There are two points to this. First, Spinoza deals with the connection between ideas and bodies. One spot he does this is at 2p7, "The order and connection of things is the same as the order and connection of ideas", which means that ideas and bodies are inextricably linked. The relation of the attributes of substance is of unity, and this applies also in the relation of modes, that is, an idea is the same as a body, conceived in a different way. In reconstructing a proof for 2a2 several passages which establish the relation of the mind to the body

more firmly are important. We know, says Spinoza at 2p13c.sch, that thinking and bodily functioning are associated, indeed are one. This is not only true of some ideas, but is true generally, since all ideas are of affections of the body(2p26). So, as he says at 3p3, the union is identity. This establishes the relation of mind to body (though the reader may of course not be convinced by this all too brief demonstration, of which there will be more following the present point).

Second in the argument to establish that we know that other humans think, it is necessary to show how we can be sure that other bodies are like our own. If that can be demonstrated, then from the foregoing we may conclude that other bodies must have minds as we do.

We know that bodies agree in certain respects (2 lemma2), and that they are differentiated by their power - that is, by what they are able to do (2p13c.sch). A body which behaves as our own does, which is able to do many things, agrees with our own. Because our body, as we know from experience, is able to do many things (for example, to form the images of many things - cf 2p17sch), we know thinking in ourselves. Therefore we know (by 2p7) that another human body, or any body which demonstrates an ability to do things, has a mind which thinks just as we do, that is, one can affirm that humans think.

As to the possible acceptance of this point of view, Spinoza says at 3p2sch

I can scarcely believe, without the confirmation of experience, that men can be induced to examine

this view without prejudice, so strongly are they convinced that at the mere bidding of the Mind the Body can now be set in motion, now be brought to rest.

In saying "Humans think" Spinoza is at once referring thinking to the body, since for him we cannot conceive of humans without conceiving of human bodies. Thus, as I said earlier, he avoids the situation Descartes has in saying "I think".

In reconciling mind with body in the individual Spinoza is compelled to alter the usual meaning of the word 'idea'. This usual meaning, according to Wolfson¹⁰, derived from Aristotle's eidos - the form of the object which is in our minds, the representation, image or imitation. For Spinoza an idea is not an image. He says

...by ideas I do not mean images such as are formed at the back of the eye-- or, if you like, in the middle of the brain. 2p48s

He also says

...an idea, being a mode of thinking, consists neither in the image of a thing nor in words. For the essence of words and images is constituted solely by corporeal motions, far removed from the concept of thought. (2p49c.sch)

For Spinoza the idea is the form of the thing, not as it exists as an aspect of perception, but as it exists as the thing itself. To identify ideas with aspects of the body is a common confusion. An example relevant to our purpose occurs in Groen's "Spinoza's theory of the affects and modern psychobiology". Groen contrasts the axiom "Humans think" with the definition "The mind is a thinking thing" (2def3). He thinks these statements reveal an inconsistency, since by saying 'humans think' demonstrates a

mind as a thing in itself, separable from the body. Groen approves the monism and thinks that in this Spinoza is very close to the modern psychobiological point of view. Groen proposes that Spinoza's backsliding towards dualism be dealt with (at least for the purpose of interpreting his work in a way consistent with psychobiology) by considering mind as a set of functions and activities, and not as a thing in itself. The set of functions and activities which Groen names are mostly of the body and not the mind. One mentioned is the act of speaking. The passages just quoted show that Spinoza thought speaking to be a motion of the body, and not a kind of thinking. Also, the claim that it is dualistic to call mind a thinking thing is true for Spinoza's epistemology, but Groen is making an ontological claim which misses the mark, for the mind is a thinking thing only in the sense that it is the idea of the body - that is, the mind has no independent or substantial existence.

Since the body and the mind are the same thing conceived under two different attributes, the idea is not a representation. The object of one's idea is one's own body, not another's (2p13). 'Object of' is Spinoza's term concerning bodies or thoughts which have thoughts as their ideas. (The thought of a thought is dealt with below in the discussion on consciousness.)

However, Spinoza still uses idea to indicate our knowing about a body not our own. A.E. Taylor, for one, finds this incoherent:

It is neglect to insist on the unique character of all knowing as an apprehension of an object by a subject which explains the standing and apparently unconscious Spinozistic equivocation by which "the idea of Peter" may mean either "the mental complex which corresponds to Peter's brain and nervous system", the mind of Peter or "the mental complex which exists when Paul thinks of Peter", Paul's 'idea' of Peter, or may mean both in the same breath, if it is convenient for the argument that it should.¹¹

I think Taylor's exposition is off on a couple of points.

Although there is properly - that is, by definition - an identity between idea and object, Spinoza has a concept of an idea of someone or something in which he employs the word 'idea' as a shorthand reference. The reference is such that 'idea' used in the sense of 'an idea of some object other than one's own body', is shorthand for 'the idea of one's body as it is affected by some other body'. This is a point which is not explicit in the Ethics. Daisy Radner writes that

My idea [of the sun] represents the sun to me, by virtue of the fact that its object is an affection which has something in common with the sun. Thus the resemblance or likeness is not between my idea and the sun. It is between my bodily affection and the sun; or, since "the order and connection of ideas is the same as the order and connection of things", it is between the idea whose object is my bodily affection and the idea whose object is the sun.¹²

Radner's final point is an especially good one, for there is a tendency to regard the body as an intermediary lying between the knowing mind and the known object. Since for Spinoza there is only one thing going on, our idea does directly know the other particular thing in as much as it is affected by the other.

Knowing, says Spinoza at 2p19 through 2p25, depends on the change

of idea which occurs when one perceives another: "The human Mind does not know the human Body itself, nor does it know that it exists except through ideas of affections by which the Body is affected". Neither does the mind know itself, except through ideas of the affections of the body (2p25).

These affections, however, do not occur as writing on a blank slate. One's own nature has an influence on how one is affected. Spinoza goes so far as to say that our perception of a thing expresses more the nature of our own body than the nature of the other (2p16c2).

In order to consider what an emotion is as an idea, the term 'idea' needs to be examined. As mentioned above, an idea is not an image or act of speech, but yet is associated with these, for there are ideas of images or of things said. Consider Spinoza's definition of idea at 2def3:

By idea I understand a concept¹³ of the Mind that the Mind forms because it is a thinking thing. Explanation: I say concept rather than perception, because the word perception seems to indicate that the Mind is acted on by the object.

Spinoza rather muddies this distinction by using perception in places where one would expect conception. Such usages occur at 1def4 and at 2a5.

1def4: By attribute I understand what the intellect perceives of a substance, as constituting its essence.

2a5: We neither feel nor perceive any singular things [NS: or anything of natura naturans], except bodies and modes of thinking.

One would expect conception in 1def4 in order to accentuate the

notion that God is conceived by us to be activity itself. For at 1p15 and 16, Spinoza identifies aspects of God such as eternity and immutability with the attributes. As well he says that everything is conceived by and through God - so of course the attributes also. And at 2p1sch he says, "...we can conceive an infinite being by attending to Thought alone."

As for 2a5, Spinoza shows in part 5 that the knowledge of singular (or particular) things is most active, and is to be called intuitive knowing or knowledge of the third kind, in which one best knows God and is most free.

To solve this quandary I propose that Spinoza is using perception to imply, not passivity, but activity. This interpretation would be consistent with the notion voiced in various ways at 2p40, 5p4 and elsewhere that nothing is devoid of activity, nothing is completely passive.

If this is so, then Spinoza also means us to rethink the meaning of conception. The explanation suggests that, were it not for the dualism implicit in the normal usage of perception - which implies that the body acts on the mind - he may have used 'perception' to define 'idea'.

The fact that he mentions perception at all, then, indicates that this term has nuances which are appropriate to what he wishes to express by idea, while conception is not exact enough for his purposes - else why mention perception at all? What seems to be required is a merging of the two concepts: the content of perception (always of the body) joining the activity

of conception. This will be discussed below, along with some discussion of the truth which is in perception, however confused perception may otherwise be.

So for Spinoza perception is one of the ways in which "Humans think". Another, related way of thinking is emotionally. In the Ethics, particularly in part 3, Spinoza says that emotions are known in the context of the body¹⁴. Emotions are also elements of our experience. Whitehead, in Adventures of Ideas, says that emotions are the basis of experience. He also says, "Stated more generally the basic fact is the rise of an affective tone from things whose relevance is given"¹⁵. I think Spinoza is in concurrence with this. One reason to think so, though it involves a change in the ontological reference from things to substance, is that for Spinoza the first given is the idea of God or Substance, for nothing can either be, nor be conceived, without God(1p15), and the idea of God may be conceived through the affective tone of love - for as love is an affection, God is necessarily involved as cause (5p35 & 36). In contrast to Whitehead, the relevance of things which are given is known through the emotions one has, rather than that emotions follow from the relevance of the given thing.

There are as many species of emotions as there are species of things (3p56), so all our relations have an affective tone. Emotions may arise from the relation of a part of the mind to things and also in the relation of parts of the mind to each other and to other things, and also the relation of the mind as a

whole to all things. We cannot ever escape them; nor would that be desirable, since emotions are also desires and as such constitute our essence (3 def. of the emotions), so that to escape one's emotions would be to escape from living.

To reiterate, the importance of the emotions is their role in passivity and activity. Since they cause further affects in us, we must come to know and control them.

This control does not imply a dualism of mind over emotions, since emotions are part of the mind. When Spinoza speaks of "the mind's power over the emotions" (5p6sch), he is referring to the whole's power over its constituents. He also suggests that reason can affect the emotions (5p7), and that our understanding of an emotion can bring it about that a passive emotion becomes active (5p3). These formulations suggest, contrary to the 2p7 identity thesis, a dualism of being rather than of conception. They reflect the natural dualism of the time. Spinoza's method of bringing the two levels of discourse together will show, I think, that the looseness and seeming ontological dualism of his language may yet be consistent with his central thesis. To further explore this and its relevance to the nature of the emotions, we now turn to an examination of Spinoza's studies on physiology.

Body

At 2p13sch Spinoza says that a distinct understanding of

mind/body unity will not be gained "unless [one] first knows adequately of the nature of our Body". With this he moves to sketch a physics and a physiology - an ambitious undertaking of which he says at the note to 2p17 that he thinks what he has outlined "is not far from the truth" (emphasis added). In the face of this curious contradiction of having 'adequate' knowledge while working with postulates 'not far from the truth', the majority of the explication of the nature of Mind continues¹⁶. In between these comments some important ideas are broached: the finite mode of extension, motion and rest¹⁷; singular or particular things; individuals; and conatus. I will now consider these together, and will then describe the notions of bodily passivity and activity in relation to the emotions. Imagination will also be discussed, because emotion is in imagination (5p34¹⁸) and because, as with emotion, imagination may be considered an activity or passivity.

'Motion' and 'rest' are the elemental terms in Spinoza's physics, and are also important in his metaphysics. Here we are concerned with the former. Spinoza says that all bodies are either in motion or at rest (2a1¹); the constituent parts of complex bodies can also be differentiated in terms of speed and slowness¹⁹. Spinoza appears to be a kind of atomist, for he says at 2a2² that he has till then spoken only of the simplest bodies²⁰. This would make them individuals, with the original sense of being indivisible things²¹. Whether, or to what degree, Spinoza is an atomist is arguable. He does in any case employ

the idea of the individual to indicate something which may not be destroyed (5p23)²². But in contrast with this he also says that individuals can be composite bodies. Likewise particular or singular things may be composite bodies: particular things are initially defined as "... modes by which God's attributes are expressed in a certain and determinate way"(1p25c). This is metaphysical; the physical or physiological expression of the idea includes both simple bodies and aggregates of simple bodies²³. With the latter, a relation of the parts is called a ratio of motion and rest. An individual which is an aggregate of bodies, then, is in a sense divisible, and therefore destructible.

The resolution of the tension between the two senses of individual may be that, in as much as an individual is the form of the parts and exists only if there continue within itself a constant ratio of motion and rest, it is one thing and may be considered indivisible - but not absolutely, since any change of motion and rest will result in a new individual. Spinoza says in regard to this, that the parts of a body may alter, and the individual remain the same, if the parts continue the same ratio of motion and rest (2lemma6). He therefore implies that a change in the ratio of motion and rest constitute a change in the individual.

The observation that simple bodies remain in motion or at rest while complex bodies tend to retain a certain ratio of motion and rest points to this corollary - complex bodies will

tend to maintain or strive to preserve themselves. This striving is conatus²⁴.

The conatus is a concept of intriguing connections, operating as a bridge between the mental and the physical, by having meanings in each. These must be related one to the other to express the full meaning of the term and with it an understanding of mind/body unity. Here following are some of the connections.

The latin forma may be used to translate the greek idea. Of interest then is Wolfson's comment,

The term "idea"... means the form of the thing which is the immediate object of cognition²⁵.

Compare this to the second definition of Spinoza's Principles of Cartesian philosophy:

By the term "idea" I understand that form of each thought through the immediate perception of which I am conscious of the thought itself.

Form is linked to idea and to body, for "the immediate object of cognition" is the body. At 2p13 Spinoza says, "The object of the idea constituting the human mind is the body". Also, he says at 2lemma4dem,

"What constitutes the form of the individual consists only in the union of bodies".

So form is used both of ideas and of bodies. Conatus is similar. 2lemma4dem reflects in part 2p11, where Spinoza says,

"That which constitutes the actual being of the human mind, is nothing else but the idea of an individual actually existing thing".

The actual being of the human mind, or its essence, is the

conatus, for at 3p7 he says,

"The striving with which each thing strives to persist in its own being is nothing but the actual essence of the thing itself".

The actual being of the human mind - the idea of mind - is also the union of bodies, which is to say the ratio of motion and rest. Conatus is the striving to maintain this condition (cf. 3p6,7). The reality of conatus may be defined also in terms of what the body is capable of doing - how it can act and be acted on. The unity of mind and body in this is made clear at 3p28

...the conatus of the mind, that is, its power to think, is equal to and simultaneous with the conatus of the body, its power to act.²⁶

The power or activity of the body is described by Spinoza at the General Definition of the Emotions in part 3 in a way which relates activity to thought.

The excellence of ideas and the actual power of thinking are measured by the excellence of the object.

This passage has something in common with another in the note to 2p13, where Spinoza speaks of the excellence of ideas and of their objects, and then says

...in proportion as a Body is more capable than others of doing many things at once, or being acted on in many ways at once, so its Mind is more capable than others of perceiving many things at once. And in proportion as the actions of a body depend more on itself alone, and as other bodies concur with it less in acting, so its Mind is more capable of understanding distinctly. And from these [truths] we can see the excellence of one mind over another.

Ways in which the mind is excellent include imagining and remembering. I pointed out earlier that imagination is important

in considering the emotions. This is made clear at 5p34 where Spinoza says

An imagination, then, is an affect (by the gen. def. of Aff.) insofar as it indicates the present constitution of the body.

To imagine or remember is to consider (or affirm, as Spinoza would say) an object to be present which is not actually present. The physiological explanation for this rests on 2post5

When a liquid part of the human body is determined by an external body to impinge frequently on another part which is soft, it changes the surface of that part and impresses on it certain traces of the external body acting upon it²⁷.

The influence of a thing continues in a latent way. A similar object encountered later will have the effect of deflecting the liquid movements from the soft portions in a similar way. Then the body is modified as if it were once again in the presence of the first object (cf 2p17 & 18). This is memory, and the modification of the body is the image of the thing.

...the affections of the human body whose ideas present external bodies as present to us, we shall call images of things, even if they do not reproduce the [NS external] figure of things. (2p17c.sch)

The movement of the fluid parts of the body interacting with the soft parts is imagination, for so long as the movement continues, "the Mind will regard again the external body as present" (2p17d), though it is not. Spinoza calls this the origin of error. But error does not reside in the imagination as such, for imagination may also be a strength which we possess, in as much as we understand that the image we have is not actually

present²⁸. The imagination is then a power of the body, "especially if this faculty of imagining were to depend solely on our own nature..." (2p17sch).

With this we move to discuss the place of the emotions in the context of the two foregoing sections.

Mind, Body and Emotion

In this part I will argue that for Spinoza emotions are the basis of thinking. To understand this is important for Spinoza's epistemology, but also very important in his ethics. The whole point of doing the epistemology is so that one can become more virtuous, or free. The way in which this is done is to come to know the causes of one's behaviour - for if we can know the cause, we may be able to discover the correction to our passivity or bondage. Because the intricacies and problems of the arguments on freedom are beyond what I can properly address, the issue will be only touched on here. Still it is necessary that the issue be addressed, since the argument that emotions are the basis of thinking must consider active and passive emotions, and consciousness. The context in which he discusses these is always concerned with bondage and freedom.

From the part on body, we may conclude that the conatus of an individual is, in one way, its physical form. But there is more to be said about the conatus as the essence of the mind. Geuroult, in considering the passages of 2p13sch which we have just been looking at, notes that of these propositions

...le seul [expliquées ou démontrées] énoncé indique de quelle façon l'excellence de l'Ame étant la connaissance (4p26,27,28;5p25), cette âme est la plus parfaite qui, grâce à la complexité de son corps, peut, comme l'Ame humaine, accéder à la haute connaissance, c'est à dire à la connaissance d'intendement²⁹.

The conatus, or the excellence of the body, and the excellence of the mind, or knowledge, are one. The idea of the mind, which is the soul (l'Ame) or conatus, is also then the excellence of the body. The parallel process of thinking and acting shows the unity. In thinking, the mind judges. Spinoza calls an idea an affirmation or denial. The physical correlate of this is what Spinoza calls pleasure and pain, or, as we might say, liking and disliking. This process, as will be shown, is conation, which is otherwise called appetite, desire or will. In this we have the elements of the emotions - pleasure, pain and desire - alongside the elements of thinking - affirming and denying, or willing³⁰.

Since an idea is called a judgement, is it then a response to the effects of other bodies on the body? If so, there would be a problem, for if an idea were a response to occurrences, then it would be at all times later than the event of sensation. It might be said that the body's state, as affected by other things, is prior to mind, which is a notion contrary to the identity thesis. And indeed one of Spinoza's proofs for mind/body identity is the simultaneity of mental and physical events. He says that

...mental decision on the one hand, and the appetite and physical state of the body on the other hand, are simultaneous in nature. 3p2

How then account for judgement of something, if it is not a response?

I think the argument has been badly put. Judging may be thought of as response without implying a lag of mind behind the bodily event, for the body's ability to be affected is immediately a response. This is so because the body's state at any time, or the way it is at any time affected, in relation to some other body, is sensation. The sensation of a thing is a response which simultaneously is a judgement of a thing. Granted that further processing occurs in the brain, but this only layers the judgement, and does not begin it. So judgement is immediately a response.

This immediacy of judgement implies an activity of the body. Along this line Spinoza's physiological psychology may be contrasted with one outlined by Plato in the Theaetetus. In the Theaetetus two kinds of motion are discussed - one has the power of acting, and the other the power of being acted on. If one were to conceive of Spinoza's ideas of motion and rest as kinds of forces (Lachterman does this), then the Platonic and the Spinozistic accounts would be quite close, save for the following: Plato says that the friction of the two kinds of motion generate something perceived, and a perception. But for Spinoza there exists no body which has only the power of being acted on. For everything acts as it is acted on (1p36)³¹. So again it may be said that for Spinoza perceiving involves activity, and may be considered as conceiving.

Further on the argument that judgement and perception are linked with sensation, and against the cartesian thesis that "the will extends more widely than the intellect, and is therefore different from it", Spinoza says

I deny that the will extends more widely than perceptions, or³², the faculty of conceiving. And indeed, I do not see why the faculty of willing should be called infinite, when the faculty of sensing is not. For just as we can affirm infinitely many things by the same faculty of willing...so also we can sense, or perceive an infinite number of bodies.

This note is at 2p49c. The corollary of which this is commentary is, "Will and intellect are one and the same thing". Sensation or perception, then, is connected with thinking and willing in that it is a judgement or a judging. The sensed or perceived is the idea which is the willing - there being no judgement apart from the idea itself (2p49). Sensation, then, is active in some ways.

This is shown otherwise at 2p13:

...as a body is more apt than other bodies to act or be acted upon simultaneously in many ways, so is its mind more apt than other minds to perceive things simultaneously (emphasis added)

Where he says "be acted upon", I take him to be speaking of sensation or perception. That Spinoza sees this as power or activity of the body is shown in his use of the phrase "simultaneously in many ways," for it is the perception or imagining of many things simultaneously which defines something of the body's activity, and also the mind's degree of animateness (2p13sch).

The passage and others like it show that Spinoza regards the aptness of a thing to be acted upon as a power. This implies that to be the body's organization is a power, since the ability of a thing to perceive depends on its complexity - its organization. An example of this sort of complexity is the process of imagination (2p40), which is so often called the origin of error that it is especially difficult to consider it as a power. Spinoza links complexity with human advantage and preservation (4p38 & 39), and also with consciousness (see discussion below page 51ff), or the knowledge of self, of God, and of things (5p39). One can therefore clearly regard the ability to be acted on as an activity.

To act and to be acted on are both then aspects of thinking, judging, willing.

What is to be shown now is the connection between thinking, on the one hand, and on the other liking or disliking, feeling pleasure or feeling pain. The link between them is desire or appetite.

Willing is connected to desire at 3p9sch, where in speaking of the conatus of a person he says

When this striving [i.e., conatus] is related to the mind alone, it is called will, but when it is related to the Mind and Body together, it is called appetite....desire can be defined as appetite together with consciousness of the appetite.

Desire is one of the three primary emotions. But this alone does not establish the connection of thinking and the emotions. To show that thinking involves liking or disliking, or that it has

as a physical correlate pleasure and pain, requires some speculation, for I am unable to find a place where Spinoza says precisely what I think he means. Reading between the lines is necessary.

Spinoza is clear on the relation of what we call good to the emotion of desire. He reverses the Platonic formula, and says that we call a thing good because we desire it (3p9s). What follows explores his answer to the question of the origin of desire.

At 2post4 he says

The human body needs for its preservation a great many other bodies, by which, as it were, it is continually regenerated.

To which compare

...Appetite, therefore, is nothing but the very essence of the human, from whose nature there necessarily follows those things that promote [our] preservation. And so [we] are determined to do those things. (3p9sch)

and compare also

Desire is the very essence of the human in so far as [our] essence is conceived as determined to any action from any given affection of itself. (3, def. of the emotions)

In as much as an affection of an individual is a need for something by which it may persevere in its existence, then the individual desires.

The good then, is what will aid us to persevere in our own being. So a thing is called good because we desire it and because it is good for us, i.e., aids us in preserving our being.

The relationship between desire and pleasure/displeasure

is like that of willing to affirming/denying: desire or conatus is the condition from which we subsequently experience pleasure/displeasure in regards to any object³³, and the pleasure/displeasure reaction is an affection of the individual. This is therefore the affection from which we are determined to any action, that is, desire. The point may also be made in this way: the mind affirms of the body a condition of greater or lesser power - that is, the mind has an idea which is emotional. In this condition it is determined to act, due to its tendency to preserve itself. The idea is a willing or a desiring, which leads to another idea, according also as it is affected by the idea of the body as affected by some other.

To say that desire depends on pleasure/displeasure in all instances is to say that the idea of the body always involves pleasure/displeasure. Therefore the pleasure/displeasure distinction, which like desire or appetite is physical/mental, corresponds to the affirmation/denial distinction of an idea in so far as it is an idea.

Liking/disliking is therefore an inevitable response to all situations, whether of the body itself, or of reaction to another body. Examples of the first are homeostatic regulatory mechanisms which result in desire to breathe, drink, eat, sleep and so on. Of the second, any reaction to an object will serve as example. This kind of interpretation seems to be supported in a passage at 3p59sch

...very often it happens that while we are enjoying a thing we wanted, the Body acquires from

this enjoyment a new constitution, by which it is differently determined, and other images of things are aroused in it, and at the same time the Mind begins to imagine other things and desire other things. For example, when we imagine something that usually pleases us by its taste, we desire to enjoy it--ie, to consume it. But while we thus enjoy it, the stomach is filled, and the Body constituted differently. So if (while the Body is now differently disposed) the presence of food or drink encourages the image of it, and consequently also the striving or Desire to consume it, then that new constitution will be opposed to this Desire, or striving. Hence, presence of the food or drink we used to want will be hateful. This is what we call Disgust and Weariness. (Spinoza's emphasis)³⁴

This passage serves well to illustrate the cohesiveness of Spinoza's terms. The acquisition of a new constitution is the arising of a new appetite. The arousal of other images of things is an expression of the appetite, as affirmation or denial. This is simultaneous with a raising or lowering of the body's level of perfection. This is a thought. The imagination of other things is appetite seen as psychological phenomena - that is, assent or denial as such. Thus, to conclude, all thinking is emotionally based, or has an emotional element.

We turn now to a discussion of the problem of consciousness and its relation to the emotions. As we have seen from the passage at 3p3, that kind of emotion which is called desire is linked with the term 'consciousness', for appetite is desire "with consciousness thereof". What needs to be sorted out is the relationship between that human essence which has been called desire, and that human essence which has been called knowledge. Like desire, knowledge too is linked with

consciousness, as will be seen below. In the attempt to understand how the emotions can be both mental and physiological, we must probe the somewhat cryptic passages in which consciousness is mentioned.

We begin with an explication of the passage at 2p13sch where Spinoza that says that all things are animate.

For the things we have shown so far are completely general and do not pertain more to [humans] than other Individuals, all of which, though in different degrees, are nevertheless animate.... However, we also cannot deny that ideas differ among themselves, as the objects themselves do, and that one is more excellent than the other, and contains more reality, just as the object of one is more excellent than the object of the other and contains more reality.³⁵

In a letter in which Spinoza argues with Tschirnhaus on the issue of freedom, he says some things which may throw some light on this curious statement at 2p13sch. First he says of freedom,

I say that a thing is free which exists and acts solely from the necessity of its own nature, and I say that thing is constrained which is determined to exist and to act in a fixed and determinate way.

after speaking of God, he says,

...let us move to created things, which are determined by external causes to exist and to act in a fixed and determinate way. To understand this clearly, let us take a very simple example. A stone receives from the impulsion of an external cause a fixed quantity of motion whereby it will continue necessarily to move when the impulsion of the external source has ceased. The stones' continuance in motion is constrained, not because it is necessary, but because it must be defined by the impulsion received from the external cause. What here applies to the stone must be understood of every individual thing, however complex its structure and varied its functions...

Furthermore, conceive, if you please, that while continuing in motion the stone thinks, and knows that it is endeavouring, as far as in it lies, to continue in motion. Now this stone, since it is conscious only of its endeavour and is not at all indifferent, will think it is completely free, and that it continues in motion for no other reason than that it so wishes. This, then, is that human freedom which all men boast of possessing, and which consists solely in this, that men are conscious of their desire and unaware of the causes by which they are determined. (letter 58, translator Shirley, p250)

The animateness of all things spoken of is touched on in the letter in the comments on what the stone does and thinks. To say that all individuals are animate, albeit in different degrees, is like the explanation of the movements of individuals such as the stone, "however complex their structure and varied their function". Therefore animate things are differentiated in their degree of complexity of structure and variedness of function. This is also their degree of reality or perfection.

These ideas are taken up again at 5p39. Here the degree of reality a thing has is once more linked to the complexity of its body, its ability to act and be acted on. This passage is a description of the high degree of animateness which is characterized by consciousness. The argument is that the excellence of the mind is measured by the excellence of the body. Similarly the quality of the excellence of the body is the degree of consciousness. Humans have bodies which "are capable of a great many activities...[and so] they can be of such a nature as to be related to minds which have great knowledge of God, of [themselves], and of other things..."(5p39). In the note Spinoza

says,

...he who has a Body capable of a great many things, has a mind which considered solely in itself is very much conscious of itself, and of God, and things.

By contrast, those who

[have] a Body capable of very few things and very heavily dependent on external causes [for their preservation, have] a mind which considered solely in itself is conscious of almost nothing of itself.

If all the passages at 5p39, 2p13, and the letter, are considered together, we can conclude that, for Spinoza, because a stone has a very limited complexity compared to the human body, or any other living thing, and because its power to persevere in its own essence is likewise very limited, the stone's excellence, being low, implies that it has little consciousness. It is "conscious of its own endeavour [striving], and not at all indifferent", but it is not conscious to the degree that the living, such as humans, are.

Wolfson comes to another conclusion about the consciousness of things like the stone:

The implication is quite clear that the stone, though included among all things described as 'animate', is not necessarily assumed to be conscious of its own body and affections.³⁶

Whether the stone is conscious of its body is problematic. But the stone is conscious, if only of its affections. Consciousness is therefore an aspect of all striving. A passage in the Ethics supports this: "the Mind...strives...to persevere in its being and is conscious of this striving." By comparison he says in the

letter, "...the stone...knows that it is endeavouring...it is conscious only of its endeavour."³⁷ Likewise it follows that consciousness involves a change of state, in so far as appetite involves an alteration in activity and/or passivity, which is a rise or fall in level of reality. The change is a change in self-causation. (Spinoza doesn't say "self-caused" in the letter, he says "in so far as in it lies".) In as much as a thing remains unchanged, it is not conscious.

In this are passive and active emotions distinguished: we are not unconscious of the former and conscious of the latter; rather in active emotions we are more conscious, that is, we are more able to act and be acted upon. Spinoza finds this self-knowledge to be of the greatest importance, for we may have appetite, and judge something good of bad, and be quite unaware of why we want it, and even largely of what it is that we want, and still we are conscious of something about ourselves. He says at 2p22

The human mind perceives not only the affections of the body but also the ideas of these affections.

The four propositions 2p19-22 which are of ideas of ideas are commonly taken to be about consciousness. Bennett says that if they are, then Spinoza will have problems explaining how we can be selectively conscious, since for every idea there is also an idea of the idea.³⁸

It might be possible, however, to conceive of a theory of selective consciousness in line with Spinoza's thoughts on

activity and passivity. Consciousness implies a knowledge of one's motivations or causes. Also, our activity is known to us as adequate ideas. Spinoza says of this that

...the Mind has, not an adequate, but only a confused [and mutilated:NS] knowledge, of itself, of its own Body, and of external bodies, so long as it perceives things from the common order of nature, ie, so long as it is determined externally from fortuitous encounters with things, to regard this or that, and not so long as it is determined internally, from the fact that it regards a number of things at once, to understand their agreements, differences, and oppositions. For so long as it is disposed internally, in this or another way, then it regards things clearly and distinctly, as I shall show below. (2p29sch. emphasis added)

From this we see that inadequate ideas are a limited condition, and are not the essence of the mind. But they are a limitation of our consciousness, wherein we see ourselves confusedly. Emotionally the idea expresses a feeling of lack of power. Whenever our body's power is lessened, we at once conceive inadequately.

Consciousness, as the idea of an idea, is an act of comparison. To this Hallet says

The idea ideae is thus the idea of itself as known in the only way an idea can be known viz as consciously enjoyed. Our contemplations are not lifeless pictures, but actions which we cannot have and yet be unaware of them.³⁹

To conclude this chapter we will consider something of the importance of emotions in Spinoza's discussion of freedom.

Emotions are a knowledge of self, and are all to some degree adequate (cf 5p3 and 4). For these two reasons they contain in themselves the means for self-control. As we become

more conscious of ourselves we are more able to resist what is foreign to our essence.

If we live according to rules (such as are described at 5p10), we will gain power or freedom; we will become more conscious of ourselves, and will improve the likelihood of being able to conceive, that is, to live, according to the "other way" which Spinoza mentions at 2p29sch. Here is rationality compared to intuitive knowing. For rationality, our emotional nature is characterized by cheerfulness (cf.4p44, 60, &61, in conjunction); the emotions involved in knowing intuitively include cheerfulness, and are in all ways positive, that is, active and assenting, finding pleasure in things and in oneself. This is what Spinoza calls the knowledge of particular things, in which we are most active, most free (cf.5p33).

The path to liberation requires, according to 4p7, contrary and stronger emotions than passions we have. For Spinoza the origin of the active emotions is not the mere idea of alternative emotions, but those emotions themselves. The thesis that all ideas are emotional explains an apparent contradiction in the Ethics: on the face of it the 4p7 statement that emotions are the only things which can change emotions is contradicted by statements in part 5 which say that emotions may be altered by reason. For instance, 5p7: "...emotions which arise or originate from reason..." If the thesis argued here is correct, then all ideas which are of reason, or "of the intellectual order", are themselves emotional, and that is why Spinoza can make both

statements and yet not contradict himself.

I would not wish to say that Spinoza is utterly consistent, nor that my presentation of his thought is consistent on all counts. To do metaphysics, I think, is to involve oneself in contradictions and half-truths - in the notion, for instance, that Nature is both moving and unmoving; likewise in metapsychology: that the mind thinks (that is, desires) and that the mind is eternal (that is, does not change), and therefore does not desire. These are difficulties I find in Spinoza. In my presentation I find other difficulties: that consciousness is something of our striving, even though we can have an appetite and be unaware of it (cf. 3, def. of the emotions); or that we can have an idea of an idea which is confused (cf. 2p23-25); or that we can have an idea of a thing which is not emotional (cf. 2a3).

Despite these problems, it seems to me that the above is, in respect to other problems which arise in the neurosciences, sufficiently clear to proceed. Some of the points raised here will be rejoined in chapter 4, where I will consider the two psychologies together. Now I will turn to an examination of the neuropsychological position.

Chapter three

Emotion and the neurosciences

In this chapter I will outline some of the work done on the emotions in psychology, beginning with James' work (which combines physiology with introspective psychology); touching on the influence of behaviourism (the dropping of introspection and the attempt to deal with emotions as behaviours only); the problem of special centres and brain processes; Hebb; and the development of physiological psychology into neuropsychology. I propose to examine the issues of 'special centres' for the emotions as a means of getting at the difficulty which James' theory and subsequent theories have in explaining emotional processes.

The purpose of doing this is to demonstrate that something quite appropriate in psychological methodology - introspection - which is evident in James (and also in Spinoza), was abandoned - abandoned in the sense that people stopped overtly working on the subjective. The work on the emotions shows people striving to eliminate the subjective entirely, and failing. Part of the attempt to eliminate the subjective concerned the issue of brain processes, for it made better sense that there were no special centres for brain processes if there

were no subject. Upon finding that there is a need to account for brain processes, attempts have been made to include them without appealing to the subjective as justification. I argue here and in the following chapter that this is impossible - that there should in effect be a return to something like James' position. For this reason I examine the relations of emotion, instinct, brain processes and special brain centres, for these in turn are important in the discussion of introspection, purpose, intention, willing, and so forth, which will be more specifically addressed in relation to Spinoza's work in the following chapter.

The neuroscientific attempt has been to take terms which refer to mental processes and say that these are no more than physical events miscalled as mental. This would mean that the mind is nothing in itself, that it is nothing more than the aggregate of behavioural or observable events. To be included among these events, and regarded as essential, are the workings of the brain. The result of this project has been that terms which apply to both the psychological and the physiological, such as 'perceptions', 'feelings' and 'emotions', have been explored as if they existed only in the physical realm and not (or only epiphenomenally) in the mental. The confusion in methodology begins in thinking that this is even possible.

Bunge outlines various positions which have been adopted in the dispute¹. I draw from his list in saying that the positions which have been taken up by the neurosciences are either a materialism with the mental eliminated, or one with the

mental emergent (Bunge's own position, and also Hebb's), or a dualism which is interactionist (that is, mind and body being substantially different and yet able to affect one another), or a dualism wherein the mental is epiphenomenal (James characterizes this as the mind being a secretion of the physical, having no practical effect).

The differences between eliminative and emergentist theories of mind, and between these and epiphenomenal dualism, are not large so far as this paper is concerned. All assume that the physical, the material, is the basis of everything we know and can investigate. They assume in common, in other words, that the mind is not something which exists in its own right, that it cannot cause anything, and that it does not have its own laws². The work they all engage in is one of translation of the mental into the physical.³

Interactionist dualism, on the other hand, has been much criticized, usually from the point of view of the positions just mentioned, and has little support any more in psychology. However, one very often finds language which appears to be interactionist. This is a confusion which is not settled by saying that the language is being used in the old way but really refers to the new. The increasing use of mentalistic terms, even of terms ascribing motive force or agency to the mind, provides an implicit psychology without the basis of an explicit and properly worked out theoretical framework. Hebb's warning (cf. the introductory quotation) is specifically aimed at this use of

language, which may be particularly found in the field of motivation and emotion. In what follows I will sketch some of the thinking about the emotions that has been put forward in psychology, paying particular attention to James and Hebb, and having an eye to eventually show that Hebb's psychology must itself be subject to the scrutiny which he demands of others.

Since it is often assumed that the emotions have their origin in the physical, it has been necessary to show how this occurs in order to explain and develop predictive models for them. This would have been easier if not for the fact that the most influential attempt to theorize about the emotions, the James-Lange theory, lays its stress on perception. Since to many psychologists the act of perception is something that can be inferred only, there has resulted a rather uncomfortable tension, and psychology has struggled to account for the success of the theory, with its use of the subjective, while coming at it through the physical or behavioural. To speak of James' theory according to physiology is possible because James does talk about the theory in physiological terms; however the subjective, which is to say introspection, is basic to the theory. The following will go in to some detail on James' theory, dealing explicitly with the place of introspection in relation to emotions and brain processes, and then proceed to some other theories which followed and were influenced by the theory.

James advances a theory of emotions which was uncommon and controversial because it differed from the prevailing view,

being its opposite. Common sense, as James says, tells us that we feel an emotion prior to the perception of any bodily change due to the emotion. For example, we first feel sadness, then we begin to cry. James says that our feeling of sadness is only our perception of our bodily condition - the changes which precede crying, the crying itself, and the other physiological changes which may precede or accompany the crying. James says that the reverse of saying, "We feel sad and therefore we cry", is, "We are sad because we cry", which to most people must seem very peculiar. The normal view might be to say that when we are sad it is because something - some memory or something we have seen, makes us so: crying is the expression of this. James' theory is not merely the contrary of this, but is more peculiar yet, for he does not say that the emotion of sadness is the result of crying, (so that emotion is still an entity which exists separate in the mind), but rather that the emotion is the perception of our crying.

If so, why do we then feel sadness (or any other emotion) prior to the recognition of a particular bodily state such as crying? The answer to this is that we perceive the physical changes leading up to such a state, whether that state is weeping, dancing about for joy, glowering or striking at someone. The changes which lead to these events constitute the feeling of priorness. So the act does not originate in the mind - a disembodied emotion influencing the body. In the case of sadness, to continue the example, the prelude to tears is often a

growing tightness in the throat. One feels this vaguely and feels "upset": then come the tears.

James' own words on this:

...the bodily changes follow directly the perception of the exciting fact, and [...] our feeling of the same changes as they occur is the emotion⁴.

How does he arrive at this position?

Chapters 22 through 26 of the Principles of Psychology (PP) constitute a group of subjects which have to do with movement. The latter three have to do with "classes of movement consequent upon cerebro-mental change"⁵. These are the chapters on instinct, the emotions and will. Emotion is the perception of bodily movement which is caused by a change in the brain, and this change follows the perception of some exciting object. James devotes some space to showing how this occurs, starting with Ch. 22: "The whole neural organism is, physiologically considered, but a machine for converting stimuli into reactions"⁶. And, "Every impression which impinges on the incoming nerves produces some discharge down the outgoing ones"⁷. This discharge is general throughout the body. James calls this the 'law of diffusion' and says,

a process set up anywhere in the centres reverberates everywhere, and in some way or other affects the organism throughout, making its activities either greater or less ⁸.

In the chapter on the emotions he amplifies this, saying,

the entire organism may be called a sounding board, which every change in consciousness, however slight, may make reverberate ⁹.

Such changes are produced by some 'process' or some 'pre-organized mechanisms' in the brain.

James is close to suggesting that emotions are kinds of instincts, although he will not commit himself utterly¹⁰. He does say that emotions as bodily states are the result of impulses, and that they are closely akin to instincts. And he goes farther than this, having in his chapter on the instincts such headings as 'Fear', 'Love', 'Shyness' and 'Shame'. He also says that every object that excites an instinct excites an emotion¹¹. So what is the difference between emotional and instinctual movements? Perhaps James has compounded the problem unnecessarily, and emotion is only instinct, or an aspect of instinct. He says to this:

Emotions fall short of instincts, in that the emotional reaction usually terminates in the subject's own body, whilst the instinctive reaction is apt to go farther and enter into practical relations with the exciting object¹²

The question is whether James should go further here. If one lays a stress upon the words 'usually' and 'apt', what physiological difference is there between instinct and emotion as two forms of movement? If the difference is only one of degree, then can it be said that they are not really the same thing? James says that there is no difference between the physiology of emotions and instincts. Emotional movement, as instinctual, arises from impulses of the brain, from some 'pre-organized mechanisms,' triggered by a perception of the exciting object. Rather than emphasize a distinction between these two classes of movement, I

think James' exposition requires him to say that emotions are really kinds of instincts - kinds, for instance, which prepare an organism for certain actions or 'practical relations' with objects. This may easily be seen in the case of fear, where the flow of adrenalin stimulates all organs and also, importantly as it turns out, the muscles of the arms and legs, making one able to strike harder or run faster. This does not eliminate the possibility that some kinds of emotions are, as far as 'practical relations' go, not useful, but the possibility that an emotion has some function must not be discarded. We shall return to this in a moment.

James wants to see if the hypothesis of the emotions may be tested. What he speaks of in this regard is mostly concerned with non-physiological matters. Physiologically, his assertion that there are "no special brain centres for emotion", should be examined¹³. To do so is valuable in resolving the tension existing between his ideas on instincts and on emotions.

James says that his theory does not demand that there be no special brain centres, but that, according to the theory, none are needed to explain events. Whether special centres exist is a problem, he says, which remains to be taken up¹⁴. They have now been, and are still being, taken up. The studies show that there are special brain centres for the emotions. For example, there are some primary centres in the limbic area, another in the frontal lobes; involved also is a connection of the entire brain

to the Reticular Activating System¹⁵, recognized as being important to emotionality - to brain function at all.

So James' claim is partly wrong, but the theory does not collapse: the theory could have even been predicted from some of the observations which James makes on the variability of response of viscera and muscles. James says that as there are many areas which may be stimulated, it is evident that some people probably experience different patterns of visceral response than others, though such patterns may be called the same name: this would explain why some people have different emotional reactions which they label the same. Behaviourally, James thinks emotions are merely different sets of visceral and muscular responses, often grouped together according to the stimuli, and given a name. James appears to miss a point here. He elsewhere describes particular, rather than general, muscular movements and visceral responses, which he calls instincts. I think he implicitly connects instincts with emotions. But the claim that emotions are due to a diffusive wave of stimulation cannot be the case for instincts, since particular acts are performed - which means that particular processes in the brain are involved. But to see if James makes this contradiction we will have to consider the relationship of emotions and instincts more closely yet.

James says that emotions and instincts arise at the same time¹⁶ and that this is so because the instinctual response to an object produces a general wave of stimulation through the body. The problem with this is that such an explanation makes it

difficult to explain the relative unvariableness of the bodily responses of an emotion. Why for instance is the emotion of fear generally said to have the bodily characteristics which it does (increased heart rate; sometimes a "loosening of the reins"; enlargement of the retina, and so on)? Such things are not always specific to that emotion, as James notes¹⁷. We must nevertheless explain why they are so usual to it. Such an explanation would be perfectly easy if we could say that, just as the instinctual activities must be triggered by specific effectors in the brain, so must emotional ones; not necessarily the same mechanisms, but certainly allied ones. Therefore there must be special centres for the stimulation of particular parts of the body, which have the effect of causing particular emotional and instinctual behaviours.

This is a difference from some overt aspects of James' theory, but whether this difference unduly disturbs the theory is questionable, for when James says "pre-organized mechanism" we may insert some specific term for the general one he uses, for example, the limbic system. For the theory to still hold it is still necessary to say that some diffusiveness of stimulation must occur, in order to account for the variability, but this is well within what the theory can tolerate without disruption.

As James says, the ability of a theory to explain is very important in scientific investigation. He objects to earlier work on the emotions because it is all classification and description and does not allow one to go to a "deeper order of

inquiry"¹⁸. James' theory offers much in the way of explanations, and this of course is why it continues to be used in science. Here is a section on some of the problems of explanation for the physiological aspect of the theory¹⁹:

Central mechanisms, located primarily within the limbic system of the brain, are necessary in the normal activation of the emotions. But are they sufficient? Strong emotions have long been known to produce dramatic changes in the pattern of bodily functioning. Would fear be different without its chills and shudders? Visceral changes that usually accompany emotion seem to be necessary for normal emotional expression.

William James, the first great American psychologist, argued strongly for the importance of visceral sensation in emotion. He proposed that the feelings associated with emotional behaviour arise from autonomic responses that are produced reflexively by the occurrence of the exciting event. Others have challenged James' view on a number of critical issues, three of which will concern us here. First, if James were correct, then the artificial induction of visceral activity should produce emotion of some sort. Second, different visceral patterns should accompany perceptibly different emotional states. Finally, the interruption of sensory pathways from the visceral organs to the brain should result in substantial²⁰ changes in the quality of emotional experience²⁰. Each of these predictions has been, in part, born out.

James also considers each of these challenges. The second he says is something which may be investigated²¹. For the first, he examines the case of the actor who is 'playing a part' and becomes emotionally involved. James says that anyone who attempts to behave as if he felt in a certain way, whether happy or whatever, will probably become so in time; if not, then there may be some stimulus - a memory perhaps - which prevents the body from adopting all the visceral and muscular changes which when

felt are the state of gladness. James treatment of the third is more curious. He rules out the appeal to any paralytic person for proving the theory²². Schachter (1971) says that such people report a decrease in emotional feeling, and the more so the higher the break in the spine. This is supportive of the theory. James, however, in discussing the problem, gets caught up with the difficulty of the 'anaesthetic' person - that is, someone who does not have a spinal problem, but does not report any feeling in certain areas of their body. Such people may evidence a physiological state consistent with the report of some emotion, and yet report that they feel nothing. Perhaps, so James speculates, the person is feeling, but in some split-off part of their personality²³. Such a person may demonstrate to others the behaviour of an emotion without being able to affirm it of themselves. James says that the emotion may be performed "in cold blood"²⁴. This idea is also affirmed in the case of paralytics. It would seem, then, that James was misled in his reasons for excluding paralytics: the case of the (hysterical) anaesthetic is different from other paralytics, and the information obtained from these studies is important in supporting James' theory, which also draws support in a number of other studies.

It seems highly unlikely that all of James' ideas on the physiology of the emotions might be abandoned. But even if most of them were, we should be left with something else: for any examination of James' theory it is important to remember the non-

physiological element. James thought it would be quite impossible to avoid introspection. James is in fact worried about being seen as too materialistic:

Let not this theory be called materialistic. [We are dealing on the one hand with impulses, sensational processes], but our emotions must always be inwardly what they are, whatever the physiological ground of their apparition. If they are deep, pure, worthy, spiritual facts on any conceivable theory of their physiological source, they remain no less deep, pure, spiritual and worthy of regard on this present sensational theory (James' emphasis).²⁵

In the face of all the physiological detail and backup to the theory, we are told that emotions must inwardly - that is, to us, be what they are. This returns us to James' notion of the true psychological point of view: the perceived world is the nucleus of reality²⁶. And early in the book James cites Brentano: "The phenomena inwardly apprehended are true in themselves. As they appear ... so they are in reality."²⁷ James says that this is the point from which psychology must start, if carefully, and not with such things as sensations and brain processes. Naturally, in order to fulfill the criteria of good scientific enquiry, an account of sensation must be able to answer questions and to give us a deeper knowledge of the situation, but it must not go counter to our experience. Such have been the results of some theories which assumed the primacy of sensations²⁸. James would have thought the influence pernicious, leading as they do to such distortions as this modern account of how James arrived at the theory of the emotions:

James believed the nervous system consisted of sensory association and motor areas, and lacked any special areas for creating feeling qualities (James 1890-1950). This belief, along with his introspective experiences also convinced him that the feedback from motor reaction was the critical factor in adding feeling to experience. But what organismic response would be most critical to adding this emotional quality to perception? Because they were involuntary, complex, and (potentially) diversely patterned, James settled on visceral reactions as the source of feedback; he felt they provided the specific qualities of different emotions eg. feelings of fear, anger, shame, guilt etc.²⁹

Perhaps James' first ideas on the subject of the emotions came about because of his studies in neuro-physiology (James was originally trained to work in this field), but in the account by Leventhal it is clear that the perceived world is not primary, as James says it must be. For James, the theory does not rest on a matter of locating, or settling on some particular organismic response as being the most likely site, but of introspectively becoming aware of certain bodily responses and knowing (roughly) what these are. Introspective experience was in itself convincing for James; it was not the addendum that Leventhal makes it out to be. When Leventhal says James felt that visceral reactions were the source of feedback, he did not mean James perceived this to be so in his body, but for the sake of accuracy to James' method, this is how the word 'felt' must be read. James feels it is important to have the neuro-physiological details in accord with what he experiences to be the case, but more important is just that something is felt to be the case.

Early on in the account of the emotions, James cites a number of authors who have taken a great deal of trouble to describe what they thought of as the physiological effects of the emotions. They are concerned with the contraction of this or that muscle, the relaxing or tightening up of the vessels of the vascular system, and so on. James says this is all very tedious, and merely descriptive³⁰. For the emotions one must be concerned with description of what is known introspectively. This is not merely descriptive, for though it produces what may be for physiology a theory, it is what for lived experience appears as a reality.

Consider again what James says of his theory:

Bodily changes follow directly the perception of the exciting fact, and our feeling of the same changes as they occur is the emotion.³¹

James arrives at this through introspection, and he proceeds to show that, when one attends to the matter, one will immediately feel changes in the body which occur after perceiving something which excites. That granted, one may wonder why he goes on to say that our feeling of these bodily changes is the emotion? He has two things to say about this: First,

If we fancy some strong emotion, and then try to abstract from our consciousness of it all the feeling of its bodily symptoms, we find we have nothing left behind, no 'mind-stuff' out of which the emotion can be constituted, and that a cold and neutral state of intellectual perception is all that remains.³²

This is the most powerful argument James has for the position, and he lists a number of examples to show the point off: What is

fear, for instance, apart from the tight or trembling muscles; the liquid feeling in the guts; the fast pulse? An examination of one's own feeling states will reveal this or something like it to be the case for everybody. If one were to ask people to imagine humour without any laughter many would not, says James, be able to understand the problem. Such a thing is not possible, they would say. Go further, and ask those who are able at least to form a conception of the difficulty, if they can imagine someone in a rage when the body feels as if it were in a condition of sadness. Of course not, would be the answer, for that state where the body feels in a condition of sadness is called sadness, not rage.

The second point is related to the first. James says, "A purely disembodied emotion is a nonentity"³³. Furthermore, he says of the hypothesis:

...much is lacking to its definite proof. The only way conclusively to disprove it, would be to take some emotion, and then exhibit qualities of feeling in it which should be demonstrably additional to all those which could possibly be derived from the organs affected at the time. But to detect with certainty such purely spiritual qualities of feeling would obviously be a task beyond human power. We have, as Professor Lane says, absolutely no immediate criterion by which to distinguish between spiritual and corporeal feelings; and I may add, the more we sharpen our introspection, the more localized all our qualities of feeling become (see vol. 1, p360) and the more difficult the discrimination consequently grows. (His italics)

This last point is a further refutation of the idea that there may be inorganic qualities of feeling. Everywhere one looks into oneself one finds only more and more points of feeling in the

body. That this holds for such purely mental entities as the consciousness of the self (this is the reference to vol. 1), where the sense of self was seen to be the perception of some bodily process, makes for greater likelihood that it also holds for the emotions.

Even for the subtler emotions James finds some physical feeling to be the cause of our feeling emotions. He makes an interesting comment about the subtle feeling states involved in doing philosophy. His point is that in art and science and any activity requiring thought and patience, there exists a sense of 'rightness', "and an emotional flush and thrill consequent thereupon";

Even divine Philosophy itself, which common mortals consider so 'sublime' an occupation, on account of the vastness of its data and outlook, is too apt to the practical philosopher himself to be but a sharpening and tightening business, a matter of 'point', of screwing down things, of splitting hairs, and of the 'intent' rather than the 'extent' of conceptions. Very little emotion here! --except the effort of setting the attention fine, and the feeling of care and relief (mainly in the breathing apparatus) when the inconsistencies are overcome and the thoughts run smoothly for a while.³⁴

For all that James says that he is unsure, he states a pretty definite case.

Now I will consider some later physiological treatment of the emotions. The dependance of the emotions on physiology, especially on the brain, where James employed the notion of the reflex arc³⁵ to explain instinctual response and emotion and willing, found favour with later psychologists. But in the drive

to make psychology more scientific, the idea of the emotions as something felt was seen as something that needed to be gotten rid of. Cannon's hypothesis of the hypothalamic origin of the emotions is clearly not introspectionist in origin³⁶. He refers to James often, but does not bother with those contentions and proofs which smack of introspectionism. So in psychology generally, the experience of the individual becomes reportable in a scientific context only as an observable to someone else: the subjective becomes the object.

This step has been crucial in the development of many subsequent theories of the emotions. Behaviourism has at times treated emotions as if they were nothing other than bodily activities having the 'purpose' of eliciting a response from objects in the environment. Of course there is something to this, though the exclusiveness makes it a concept in which we are limited to experiencing ourselves as communicating only with others and never with(in) ourselves. There is also in this an attempt to interpret purpose in terms of stimulus-response theory.

The word 'purpose' has fallen into some disfavour amongst behavioural scientists, since it is seen to imply a resilience of the idea that the soul has an effect on the functioning of the body. But the other biological sciences have found the concept to be, as yet, indispensable. There is an attempt to theorize about population maintenance and strategies of reproduction - subjects which are usually thought to concern purposive behaviour

- entirely in terms of statistical models. Such an account, if successful, would go a long way to explain purpose in a non-teleological manner. But even if this were possible, it would still be necessary to see the concept as more than merely heuristic, as Hempel and Braithwaite do. To see 'purpose' as merely heuristic is to miss what I take to be its main issue: that nature is capable of bringing a particular condition or state of affairs into existence (for instance, blood pressure regulation). This is enough to justify the concept, without having to bring into the argument the notion of final causation.³⁷

Neurophysiology has examined the functions of the limbic system and some parts of the neo-cortex as if other functions or effects were unimportant, especially those in relation to, at times, the viscera and musculature. In the rejection of these in the question of the physiology of the emotions we see the further rejection of the introspectionist position. But the rejection has failed, it seems: the idea that physiological events other than brain processes per se, or their connection to certain observable emotional behaviour, have some importance, has come up in the literature again and again. Hebb, for instance, postulated that the term 'emotion' be considered to refer to the brain processes, whatever these in their complexity may be. Though there is still an attempt to include the bodily processes in the consideration of the functioning of the brain, what is lost is the distinction between the bodily event and its

correlative subjective experience. This has been replaced by the distinction between the observed bodily event and its correlated brain process. The way in which this theory has been played out, and the reasons for its failure, will be dealt here (and again in the following chapter) by sketching some of the theory's application to the study of the emotions. In this chapter the emphasis is on studies concerning emotions and pleasure and pain. In chapter four the concentration will be on higher elements of mind.

Cannon's refutation of James depended on experiments showing that the viscera and the muscles did not have sufficient kinesthetic or proprioceptive innervation with the CNS to account for the amount of perception of these areas called for in James' theory. Since James relied on this perception for his theory, it then fails. Cannon also thought there was insufficient visceral variability to account for the variety of emotions.

Cannon found that the removal of the neocortex of cats produced behaviours of rage and fear. Because the limbic areas, and especially the hypothalamus, remained intact, Cannon hypothesized that these centres were the areas of the brain responsible for the differences in the emotions. This was found to be mistaken on a number of counts: The hypothalamus was soon after seen to be not the sole part of the brain which mediates emotional behaviour. The entire limbic system is important. Also important are parts of the frontal cortex (as could have

been seen from the story of Phineas Gage, who had considerable change in personality following the passage of an iron bar of about a half an inch thickness through his frontal lobes - a story which had been reported in the 1890's). Cannon's experiments on the variability of the viscera and musculature were also found to be mistaken. This led to a continued reliance on the Jamesian theory, though some of its aspects were implicit (this was true even of Cannon's work³⁸). Research continued to be mainly concerned with the functioning of the brain, especially the role of the many neurotransmitters and hormones, in relation to overt behaviour. This can be seen in the following passage, in which central mechanisms which include the function of neurotransmitters are linked to other bodily events:

Central mechanisms, located primarily within the limbic system of the brain, are necessary in the normal activation of the emotions. But are they sufficient? [...] Visceral changes that usually accompany emotion seem to be necessary for normal emotional expression.³⁹

But what is an emotion in this description? Is the emotion the brain process alone? or is it the process plus the bodily reaction to the process? or is it these plus the resulting brain event - that is, the processing of the new information from the body? When Beatty speaks of emotions being activated, or of "emotional expression", where in this is the 'emotion felt'?

Further difficulties in the physiological psychology of the emotions may be found in the studies on pleasure and pain. The role of pleasure and pain has been judged important in the study of emotion (though James does not seem to think of this⁴⁰).

It is an idea dating at least to Aristotle (cf Nichomachean Ethics). Hebb adopts it, as we will see in a moment. Due to the similarity of this to Spinoza's theory, I want to explore some of the problems of what pleasure is.

Researchers have found that the neuro-transmitter serotonin is very important in the activation of emotional behaviour, specifically for the emotion of pleasure (or what is called the activation of the reward centres). Other B-endorphin effectors are important for the functioning of pain and reward (punishment centres). These two activities are thought to be very important to the study of emotion, and so the neuro-transmitters and areas associated with reward and punishment are closely looked at. But in this pleasure and pain are rarely defined, or are inadequately defined.

Plutchik says this:

These then represent the eight prototypic dimensions of emotion: incorporation, rejection, destruction, protection, deprivation, orientation, and exploration. These basic dimensions apply to all organismic levels from the lowest up to man. The terms used to describe them refer to overt behaviour patterns or involve concepts like pleasure and pain which are definable in terms of overt behaviour.

This latter point has been most effectively developed by Young (1952, 1959). He notes that affective processes (ie pleasure and pain) may be objectively defined by their attributes: a) approach-maintaining behaviour refers to positive affect; avoidance-terminating behaviour to negative affect... Young concludes that "Neuro-behavioural patterns are organized according to the hedonic principle of maximizing the positive and minimizing the negative affective arousal.⁴¹

This answer cannot be satisfactory. Simply because such and such a behaviour, or in the case of the brain, a process, occurs, does not exhaustively explain pleasure or pain, even in neurophysiological terms: What we are given is merely a correlation of two events. Put an electrode into the septal gyrate of some mammal (usually a rat), arrange that a small amount of current be applied if the animal presses the bar, and observe that the animal presses the bar 5-6 times a second, until it drops from exhaustion a day later⁴². Certainly one may infer pleasure, but one does not on this account know what pleasure is. To say that certain events are observed following certain other events - that these are correlated with avoidance or attraction behaviours, is insufficient since the ability to connect the two events - to see them as significant in relation to each other - lies in the province of self-knowledge and cannot proceed entirely objectively.

To summarize: in the neurophysiological study of the emotions there are these facts: Certain parts of the brain have specific functions which are thought to be related to emotional activity or expression. The parts are activated or suppressed by the function of the reticular activating system and by certain neurotransmitters. The workings of these things are not well understood. Nor indeed is the function of the limbic system overall. In any case, these have an effect on the body. Changes of blood pressure, heart rate, liver function, tension in the muscles, secretion of gastro-intestinal 'juices', the bio-

electrical 'tone' of membranes and the skin - in short, seemingly everything. So the state of the body is determined in part by brain activities, as is the state of the brain determined in part by the effects of hormones and other events originating in other parts of the body.

The brain activities themselves are triggered either homeostatically, as in the case of hunger or thirst, or by the effect of some object or situation. In either case, the effect is either pleasurable or painful, by which is meant that certain areas are activated or suppressed, which in turn causes these bodily changes. For example, stimulation of the posterior hypothalamus will bring about a pleasurable shiver running down the spine, according to the subject's report.⁴³

Turning now to neuropsychology and continuing with the problem of pleasure and pain, Donald Hebb says this of his work in The Organization of Behavior,

The theory that has been developed implies that pleasure is not the activity of particular structures in the nervous system,, and nor even a particular kind or pattern of cerebral organization, but fundamentally a directed growth or development in cerebral organization. It is thus necessarily a transient state of affairs⁴⁴.

This is, I think, a great improvement over other theories because it defines the phenomena further, identifying neural processes. It does still lack the explanation for the cause of the growth, i.e., for why the CNS grows in just such a way. This arises from striving, i.e., from drives or instincts, initially.

One might question why growth is a biologically useful thing, such that we feel pleasure when it happens - but that's not quite right. The pleasure is the growth, or at least the awareness of it⁴⁵. Still, why is growth intrinsically pleasurable? We refuse to see the thing as simultaneous. Pleasure follows something, does it not? It is an elevation of energy, but really this is just another way of saying it is a growth in cerebral organization.

One may apply to Hebb's proposal James' criticism of such theories as 'motor thought' and cerebral organization, and ask, what is this in relation to what an individual experiences as pleasure? James speaks of the pleasure that comes in doing philosophy as being mainly the easier breathing one experiences on solving a problem so that "the thoughts run smoothly for awhile". But it is argued that there may be some sort of brain event which is called pleasure or pain, or other emotion which James refuses to recognize. For instance, it has been suggested that the physiological correlates of fear, which follow on the stimulation of the hypothalamus, could have had a neural connection such that they would have been called by us manifestations of joy. In this view the brain event is of most importance, though again it is difficult to say what pain or pleasure is; and very difficult to see how the bodily events associated with fear could be, with James, a heightening of activity, or, with Hebb, an improvement of cerebral organization. But there are other not so radical departures which nonetheless

place prime importance on the brain event. This journal extract of a paper called A Psycho-biological Theory of the Emotions, says:

Emotions seem to arise ultimately from hard-wired neural circuits in the visceral-limbic brain that facilitate diverse and adaptive behavioural and physiological response to major classes of environmental challenges... it is arguable that human introspective access to emotional states may provide direct information concerning operations of emotive circuits.⁴⁶

The attempt to make some allowance for introspectionist accounts of feeling is interesting, a position that Bunge calls psycho-neural monism. But Hebb, also one of the people advocating this position, argues that introspection is impossible. We shall examine why in the following chapter, though for now it may be said that Hebb is arguing against the introspection of the last century, and not so much against the sort of usage in the above account. Indeed, Bunge's The Mind-Body Problem, armed with an afterward by Hebb, states that emotion is "the information the brain receives from the rest of the body"(p.66), and, like the above quoted author, allows that the brain may be so 'wired' that there is in one part of the brain the 'knowledge' of the state another part of the brain is in. I think that this position is the most developed of the reductionist positions, for it makes the attempt to incorporate the feeling states of the subject into the theoretical structure of psychology by taking feeling states to be affects of the neural organization. I shall be more critical of this position in the next chapter.

In present day psychology some researchers attempt a more holistic study. Schacter, for instance, has shown in a variety of experiments that a person's display of emotion depends on the situation they are in. Painful or pleasurable situations may be exaggerated by a covertly given dosage of norepeniphrine. The drug appears to have two effects: it acts on the viscera and the musculature of the body, and it is a facilitating neurotransmitter. This is closer to the Jamesian theories. It is usually said of Schacter's work that he adds to James' outline by stressing cognition in emotion. (This is unfair, I think, for James allows lots of room for conceptual aspects to have influence in the arousal of emotion, cf. the chapter on will, for instance.)

Also in contrast to an entirely objectivist position is the neuro-physiological-phenomenological one offered by Magda Arnold. Arnold wishes to find out the neural organization of emotion, but she insists that this cannot be considered to be the emotion. As well, she thinks this study of the emotions, and of brain processes which relate to what the individual is conscious of, needs to be analyzed in a way which involves an appeal to the subjectively known workings of the mind.

To identify the structures that are active during the emotion, we have to be guided by an analysis of our psychological functions as they go into action one after another. Realizing that there must be relays from sensory areas to motor areas if muscles are to be contracted and limbs to be moved, we must look for structures and circuits that can form such relays in the same order in which psychological activities follow one another.⁴⁷

But this sort of program has been resisted in the neurosciences. Kolb and Wishaw counsel (in their textbook Fundamentals of Human Neuropsychology) that in the process of doing research in the neurosciences, "fewer mistakes are made when observable events are studied than when hypothetical or mental constructs are studied". Possibly there are fewer mistakes of some sort or another in this line of research, but I suggest a crucial mistake is being made - that this program entails a fundamental narrowing of scope for the neurosciences, just as the behaviourist model of the twenties and thirties narrowed the scope of the psychology of the day, so that it no longer included such terms as 'image' and 'attention'. Even as these terms have made an appearance on the scene again, so the mental constructs will do, though not without the attendant dualism or animistic consciousness which Hebb and Bunge and so many others still try to wrestle away. The following chapter will deal further with this by bringing Spinoza's work more explicitly into the argument.

chapter 4

Spinoza, emotions and the neurosciences

In preceding chapters I have outlined the mental/physical relations in the cases of pleasure, pain and desire, which are for Spinoza the basis of all emotions. I have also outlined the position of consciousness, which opens the way to other less well-determined aspects of mind than pain or pleasure. Now in this chapter I'll argue further that emotions may be considered elements of the higher functions of mind. So doing will add further evidence to the claim that in speaking of the emotions Spinoza's psychology deals more competently with certain problems than the neurosciences do. I will also discuss some explicit ways in which the two are similar, and I will conclude that the neurosciences must openly adopt Spinoza's, or some similar, methodology, and furthermore argue that considerable attention needs to be given to problems of ontology.

Two papers written by psychologists have been concerned with the same subject matter as is this thesis. One, previously mentioned, is the paper by Groen; the other is by Lev Vygotskii, "Spinoza's Theory of the Emotions in the Light of Psychoneurology"¹. In comparing and contrasting the two sciences I will employ some of the arguments of these two papers. The following discussion deals first with Groen's. From that

discussion I'll proceed to draw other writers - positions - in, to elaborate the comparisons. Vygotskii's paper is useful in pointing out similarities and differences between the various positions, but I take issue with one of his conclusions. I think his tendency is correct, though, and I try to extend its application to higher elements of mind like will and intention.

As noted above, Groen tries to read into Spinoza an epistemological unity which is not there. Significantly, just as Groen rejects the idea of mind as something in its own right, he also rejects the element of the divine - as some of the Russian writers of the early part of the century did. He is not so unwise as Deborin and others as to say that Spinoza was himself a materialist, but his claims amount to the same thing, for he asserts that what we derive of value from Spinoza's work on psychology is to found in those views which may be called materialistic, or may be appropriated to materialism: thus the value of Spinoza's work lies only in what he has to say of the idea of the world as extended.

For Groen the prime question is how far psychology has followed Spinoza. Groen thinks the answer is: only so far as to look to causes for the explanation of things. As for the ideas on the emotions, these he thinks are interesting but inadequate formulations of a behavioural or psychobiological approach.

But Groen is so far off the mark in his interpretation of Spinoza that I wonder if he is not speaking provocatively. He says, for instance, that Spinoza regards the human mind as a

thing in itself, having a sort of substantial existence. Groen thinks that this view

is widespread, both in everyday language and in common thinking, in dualistic religions and philosophies, and in some psychological systems... however, there is no evidence that the human mind is a thing. Man is able to carry out certain activities or functions: observe, experience, think, feel and will, but this he does as such, as an organism.

Groen attempts to see humans as only physical - for instance, he defines thinking as speech with the grosser motor apparatus suppressed. Thus thinking is limited to the use of words, or other vocal gestures. Perhaps it is somewhat understandable that Groen thinks Spinoza is dualistic, then, since for Spinoza thinking does not include the use of words, and for Groen this would mean that thinking is entirely other, having an existence outside the material order. And mind is then

...the common language word for a set of human functions of which speaking, thinking, experiencing or feeling are the most important.²

What do these views tell about Groen's assessment of Spinoza's ideas on emotions? If thinking is talking suppressed, then the emotions cannot be modes of thought, that is, ideas in themselves. For Spinoza the verbal expression is a part of the emotion, though a secondary one (secondary since the expression arises from the situation in which the emotion is found). Not surprisingly, Groen says,

It is noteworthy that Spinoza included in his definition not only the modifications in the state of the body but also the ideas of these modifications; we would say: the verbal thoughts

which the human individual associates with his emotions.³

But a verbal thought is not what Spinoza calls an idea.

In order to compare Spinoza's ideas on the emotions with current thinking Groen broadly defines the latter, and in the passage above the position on verbal thinking is evident. In both passages is another interesting feature of modern thinking on the subject:

Emotions are defined in a psychobiological frame of reference as: More or less specific feeling states which are experienced as either pleasant or unpleasant and are associated with a tendency to more or less specific behaviour patterns and... with more or less specific verbalized ideas. In a biological framework, they are defined as activities of more or less specific feedback systems which have their cognition (scanning) and regulation centres in specific areas of the central nervous system, from which more or less specific motor and verbal behaviour patterns associated with the subjective feeling states, are directed and controlled. The emotions are evoked by incoming stimuli from the sense organs or by memories from previous experiences. Although the subjective feeling states themselves cannot be measured, emotions can be measured by measurement of the behavioural patterns with which they are associated (correlated).

From this it is clear that our present day definitions of emotions are still more or less similar to, albeit more technically detailed, than Spinoza's simple formulations.⁴

Groen sees the ethological sciences as having two parts: a psychological and a biological. He thinks the same may be found in Spinoza's division of substance into thinking and extension. But some of what Groen calls thinking - like speaking - Spinoza says is of extension. For Groen thinking, the psychological, is to be investigated as observable behaviour, whereas for Spinoza,

thinking can only be dealt with from the point of view of thinking, which is to say subjectively.

This is not to say that Groen tries to exclude the subjective from the description of the emotions. That he does include it illustrates my argument that the subjective continually comes into the discussion, although there is little theoretical room for it. Admittedly the mention of "subjective feeling states" is something of a concession, but the account is nonetheless one which tries to ignore the efficacy of the subject. Though the efficacy of the subjective is overtly ignored, still the main feature of the subjective, which is knowing, is included within the physiological account. The passage is:

...more or less specific feedback systems which have their cognition (scanning) and regulation centres in specific areas of the central nervous system.

These are said to be associated with subjective feeling states. Although the latter are said to be immeasurable, the former are at least indirectly measurable. The aspect of measurability is said to provide the foundation for investigative science. The reference to the immeasurability of the subjective is a concession to the knowledge that such a thing as the subjective exists and must at least be mentioned.

But in fact, as Spinoza shows, the subjective must be mentioned because it is part of the process of investigation.

Although the passage contains a reference to the efficacy of thinking, of knowing, it is implicit, as if the issue was of

little importance because immeasurable. Yet he at once contradicts this by saying that the subjective is correlated with parts of the brain which cognize or scan, as well as regulate. The processes are, at least theoretically, measurable. This is a kind of Cartesian position: the immeasurability of a subjective nevertheless connected to a physiological process which may be measured. One is not expected to understand this - it is a mystery. As Hebb says,

Mind can only be regarded, for scientific purposes, as the activity of the brain, and this should be mystery enough for anyone.⁵

But to employ the notion of the subjective in the physiological account - to so bring together the measurable with the immeasurable - cannot be good science. Hebb's advice, to examine the implicit philosophical premises of a science, is useful here. Groen's description of the emotions shows that their importance to psychology lies in their measurability. There ought therefore be no need to deal with them from a subjective point of view. What is revealed is that - of necessity - thinking must be included in the scientific account of the emotions. Were it not for the reference to knowing, emotions could not be dealt with.

Pribram, a psychologist who has done much work in the field of physiological psychology, says this kind of thinking is general in the area. He says of current theories of the emotions that there is

the socio-behavioural, which includes the subjective or "intropsychic"; and the biological,

which includes the chemical, the physical and, of course, the neurological.⁶

Pribram thinks that it is a problem in theories of the emotions that these two ways of talking about the world are brought together without being properly distinguished. Almost like Spinoza, he thinks that "each of these conceptual universes denotes some body of events common to both", and goes on to say, "different aspects of this common body will be illuminated by approaching it..." from one point of view or the other. Similarly, Spinoza argues that there is a need to examine both the measurable and the immeasurable.

In Spinoza's overtly unified view of the problem, room may easily be found for a language of concepts necessary for describing the biological workings of the body together with such 'animistic' concepts as consciousness, attention or subjectivity. These no longer need to be interpreted and explained only in something else, though they necessarily are connected to the physiological. The importance of doing both rather than one or the other is that one necessarily thinks of both together. So, consciously joining them therefore aids in comprehending how they work in the psychology.

Just this unification of views is what Vygotskii finds valuable in Spinoza's work. One of the pressing problems for Russian thinkers of the post-revolution was that of consciousness, and Vygotskii, among others⁷, thought Spinoza was on the right track. He saw too what this would mean for psychology. For Spinoza there is only one science, although with

distinguishable parts. The attempt to put the parts together, as far as the emotions go, Vygotskii sees as having two aspects, one which he calls teleological or understanding or intentional psychology, and the other explanatory or physiological psychology. He cites a number of people to show that modern psychology, no matter that it tries to purify itself, to make itself really scientific (as with the behaviourists), or really cognitive or spiritual (as the gestaltists), comes continually to this mixing of positions.

In historical and modern psychology, both forms are mixed together in a false unity. Each rarely appears in a really pure and logical form⁸.

Another neuroscientist who supports this view of Vygotskii's is Hebb, who writes:

... the recalcitrant data of animal behaviour has been drawing attention more and more insistently to the need of some better account of central processes... "mental" variables, repeatedly thrown out because there was no room for them in a stimuli-response psychology, repeatedly find their way back again in one form or another...⁹

Unlike Pribram, Vygotskii and Spinoza, Hebb does not want to deal with the mental as such. But he does want to rescue the neurosciences from the problems inherent in dualism without falling into the trap of denying thinking:

What is the neural basis of expectancy, or of attention, or interest? Older theory could use these words freely, for it made no serious attempt to avoid an interactionist philosophy. In modern psychology such terms are an embarrassment; they cannot be escaped if one is to give a full account of behaviour, but they still have the smell of animism: and must have, until a theory of thought is developed to show how "expectancy" or the like can be a physiologically intelligible process.¹⁰

Hebb goes on to say of his work,

By some such approach as the one suggested here, it may become possible to understand the directedness and order in behaviour, and the variability of motivation, as produced by neural functioning alone.

Bunge says the idea of psycho-neural monism may yet contain statements with mentalistic terms, but it must be remembered that these terms stand for their neurological equivalents. A sentence like,

The cognitive state of a subject influences her feelings and behaviour

is to be thought of as short for

the associative cortex of a subject is linked to her limbic system and motor centres, so that interactions among the subsystems of the brain are bound to occur.¹¹

It may be seen that there is room in Spinoza for what Hebb wants, the more so since Spinoza thinks the order of causes for a thing must be described for thinking separately from extension. As Vygotskii notes, some people from the "two contradictory poles of contemporary scientific knowledge of human feelings" have looked to Spinoza for support of their positions. They may do this because Spinoza allows the poles to co-exist. What Hebb wishes for may almost be found in Spinoza. Even where Spinoza describes the way in which bodies interact in the workings of the Body, which may be seen as primitive physiological psychology, Spinoza uses the similar language to Hebb's. To speak of the physical processes of memory probably involves the affects of the various parts of the body on each other. Spinoza names these sorts of

physical states, hard, soft and liquid. The effect of the liquid on the soft, he thinks, is what produces memory. To illustrate, when water is run through the land it forms a groove or channel. That is, it makes an impression. Likewise the soft parts of the body are affected by liquid movements which originate in the memory system. And as the water which originates in the same area will tend to go down the previously formed path, so do the "animal spirits"(as Descartes might say) of the bodily system. The repetition of movement is memory (cf. the discussion above, ch.2).

This is rather like Hebb's theory of cell assembly as the basic unit of thinking. Klein says

A central tenet of [Hebb's] theory is that one's previous experiences leave structural traces that exert an enduring influence on one's later perceptions and thought¹².

Spinoza anticipates that his physiological theory of memory will be consistent with more detailed study:

It is possible that the same result may be brought about by other causes; but I think it suffices for me here to have indicated one possible explanation, just as well as if I had pointed out the true cause. Indeed, I do not think I am very far from the truth, for all my assumptions are based on postulates, which rest, almost without exception, on experience, that cannot be controverted by those who have shown, as we have, that the human body, as we feel it, exists.
(2p17c.sch)

But the crucial difference between Spinoza and psycho-neural monism and others, which Vygotskii well notes, is that behaviour has an interior - that thinking has its own laws, and this too must be explored if one is to come to any understanding of human

life. Hebb and the others find this unacceptable - it stinks too much of animism. Hebb sides with those who think that "introspective knowledge is illusory at best".¹³

Vygotskii argues, I think rightly, that the neurobiological approach is inadequate when speaking of the emotions, because a teleological or intentional element is necessary for the discussion to make sense, and these cannot be determined without introspecting. As Brentano says, and as Spinoza also says, love and hate are always toward something; our love always has an object. And as for the telos: Vygotskii says

...the true relation of the Spinozistic theory of the passions to the explanatory and descriptive psychologies of the emotions [is that the] theory strives to solve a single, unitary problem - the problem of a deterministic, causal explanation of the higher elements [that is, the teleological] in the life of the human being.¹⁴

While Vygotskii thinks the theory deals quite successfully with a causal account of the higher elements as mental, he thinks that intentionality and purpose as dealt with in Spinoza's physics, or psychobiology, is not so successful.

Spinoza's theory partially contains an explanatory psychology which preserves the idea of causal explanation but throws out the problem of the higher elements in human passions.¹⁵

Vygotskii's conclusion may leave one to wonder if the reductionist position may after all be true, for if Vygotskii is right about the lack of preservation of the problem of the higher elements, is he then wrong about the aptness of Spinozistic psychology to modern research? - for the subjectivism of his

psychology would then be only a heuristic device, one which may be disregarded by those who understand the language of the neuro-physiologists, much in the way that Bunge suggests. As a heuristic device, Bunge's and Hebb's psycho-neural monism does provide a neuro-physiological basis for some sort of subjectivistic account. Emotions, as Bunge describes them, may even be called sorts of ideas indicating relation between oneself and others, or other things, which is quite like Spinoza. And Hebb argues that there is a sense or idea of self which develops in the very young child.¹⁶ So if ideas, intentions, subjectivity, consciousness and so forth are all explained in psycho-neural monism, then Spinoza, as Groen said, simply neglected to see those aspects of his philosophy which were holdovers from a dualistic psychology: he was too much swayed by his metaphysics. His psychology of the emotions, though fascinatingly similar to modern ideas, is therefore wrong at heart.

But there may yet be a way in which Spinoza's insistence on tracing the emotions in two different realms is borne out as necessary. For if it is granted that the emotions must be defined in two ways, then to try to understand the emotions from the point of view of psycho-neural monism, or any other reductionist position, must lead to failure. Ideas, intentions, subjectivity, and so on - for all that there is a place for them in psycho-neural monism, nonetheless are not understood as they are presented. The telling point of Spinoza's argument in this

is that the need to account for things in two ways arises because we actually do conceive things doubly, in a way which is impossible to avoid¹⁷. We make a distinction between what is subjective and what objective, and between the objective as what we sense, and the subjective as sensing. In Spinoza's terms, the mind is oneself insofar as one is ideas of the body. The body is oneself insofar as one is bodily processes, and these are the extended version of the idea.¹⁸ Granted that our capacity to understand each event is limited, nevertheless we cannot understand a physical or mental aspect of an event if we cannot link it to the other aspect. To do neuropsychology we must understand both. Spinoza's methodological advantage over the neuro-sciences position is thereby underscored, for even if Vygotskii were right in saying that the higher elements are abandoned in the physiological aspects of Spinoza's theory, neuropsychology would nevertheless have to go in the direction which the theory indicates, and develop physiological models which include overt reference to the mental. The question to consider now is how much, or whether, Vygotskii is correct.

In chapter 2 I showed some of the connections which occur in Spinoza's study of the emotions. Higher elements such as desire and willing were shown to be connected to appetite, as are also intention and purpose or function. In the way of showing how higher elements of mind may be physiologically linked, I will renew the discussion here.

Much of our thinking about the world is relational - we perceive nothing about the world of bodies, except as our Body is modified by the other objects of the world. Let us also understand that the Body is not modified by objects as, for instance, soft clay is by the impact of a stone: the emotions are simply the change of shape, as it were, of the Body. For the body, composed as it is of different parts mutually dependent for its continued actuality,

...stands in need for its preservation of a number of other bodies, by which it is continually, so to speak, regenerated. (2postulate4)

The needs of the body are themselves changes, and so change the manner in which the body might be modified. So the needs of the body have to do with both the initial pleasure and of pain, as well as with the subsequent actions. If one sees the connection of these activities of the body, then one can see something of the mechanism of purpose and intentionality. These are aspects of desire and willing, as I will try again to show.

We may look at this single process which is both physical and mental in this example: to decide upon a course of action, I must consider what might be done to bring about some desired event. In this my thoughts concern the various relations and possibilities between myself and the objects of the world.

Spinoza says

Everyone shapes his actions according to his emotion... These considerations clearly show that a mental decision and a bodily appetite, or a determined state, are simultaneous, or rather are one and the same thing, which we call decision, when it is regarded under, and explained through

the attribute of thought, and a conditioned state when it is regarded under the attribute of extension, and deduced from the laws of motion and rest. (3p2sch)

From this one may see that Spinoza does attempt a mechanistic treatment of emotional processes considered as body: That is, he correlates intentionality and purpose with appetite. Appetite is itself correlated with desire, which I have argued above is a word associated with willing. Since there are both physical and mental connotations, Vygotskii's assertion that Spinoza's "descriptive psychology ... discards the idea of causal explanation and preserves the problem of the higher elements in the human passions..."¹⁹, is incorrect: for the cause of one idea is another, and in their ideates we may find the same causal order.

Against this and on Vygotskii's behalf it may be argued that we understand our willing as "willing" without seeing that it is the idea of appetite, that is, without seeing a connection between the two. This may be true in a sense, but in understanding "willing" as the mental correlate of appetite we understand desire as being an intermediate term, a bridging of the two notions. In so doing we understand ourselves more as being both body and idea at once. That we do this is especially evident in the discussion of the emotions. Emotions are clearly seen to be ideas about our body in its relation to other bodies. What Vygotskii says of the teleological element being absent in connections with the physiological, the passage at 3p2sch. denies - decisions, which are concerned with ends, intentions, the

teleological, are associated with bodily appetites, or instincts. Inasmuch as emotions are instinctual, they are also purposeful. We are a thing which both acts and is acted upon, and all our action has the purpose, says Spinoza, of preserving our being. Every thought, every bodily process, is for the end of self-preservation. Thus, all thoughts are borne out of will to live (or to power, as some say), and all bodily processes arise from appetite, instinct. Emotions permeate thinking as willing, and the physical as process - in both ways, emotions constitute both the change of the body/mind and the end towards which the body/mind changes.

Those who consider the terms under discussion as merely heuristic devices would say such notions as 'willing' and 'expectancy' are not things in themselves which must be examined, but are words which stand for complex ideas which may be broken down and dealt with in terms of simpler processes. Nietzsche's comment on this is useful:

Willing seems to me above all to be something complicated, something that is a unit only as a word... in all willing there is, first, a plurality of sensations, namely, the sensation of the state "away from which", the sensation of the state "towards which", the sensation of this from and towards themselves, and then also an accompanying muscular sensation, which, even without our putting into motion "arms and legs" begins its action by force of habit as soon as we "will" anything.

The fact that willing is something complicated does not mean that it is not something which must be studied in its own right. Nietzsche himself goes on to say, just as I think Spinoza would,

Therefore, just as sensations (and indeed many kinds of sensations) are to be recognized as ingredients of the will, so secondly, should thinking also: in every act of the will there is a ruling thought --let us not imagine it possible to sever this thought from the "willing", as if any will would then remain over²⁰.

Nietzsche joins these terms together to show that what appears simple is actually complex. Spinoza would agree, but would not deny its reality thereby. The human body, after all, is complex, but it functions as a unit, which is why we call it by one word and think of it as a thing. Spinoza does not assume that the complex is less real than the simple - rather the opposite: He says at 2d6

By reality and perfection I understand the same thing,

and at 1p9 he says

The more reality or being each thing has, the more attributes belong to it.

Granted that he is here arguing for a single substance, he nevertheless calls substance a thing, and so compares it to other things. 'Attributes' of things, if one were to consider these as the characteristics of things, through which they are conceived, would be found in the complexity of bodies. This is shown by first of all looking at 2p13sch, where Spinoza links activity and reality with being able to do many things at once, or to be acted on in many ways; and then by looking at 2p14, where this ability is said to be correlated with the complexity of the body:

The human Mind is capable of perceiving a great many things, and is the more capable, the more its body can be disposed in a great many ways.²¹

Complexity is the essence of the individual, or self. Further on this question of the complexity of the self, consider now the relationship of brain, mind and body in a Spinozistic neuropsychology.

I have postulated that self is the complexity of the body. Against this is the argument that the brain is the site of the mind, and so also, perhaps, of the self. "Thought itself is the activity of the brain", says Hebb²². Luria, another influential neuropsychologist, says the brain is "the organ of human mental life"²³. James ascribes intelligence to the complexity of the instincts, which are the result of brain processes. Thus the neurosciences generally, whether advocating a double aspect theory as James or a monism as with Hebb, say that mind and brain, as opposed to mind and body, are to be linked.

Naturally enough, in all these thinkers the brain is seen to be part of the body. As seen above, James sees instincts as innate responses which have their origin in the central nervous system, but are triggered by stimuli originating (at least some of the time) from without the body. Another example of mind-brain interdependence with the body is noted by Hebb (1955) and Luria (1974), that without stimulation from the body the brain will fall into sleep. This initial and temporal separation between brain and body tends to support the idea that the brain is more the site of the mind, and leaves the body in a position of secondary importance. An additional support for this argument

would be if one were to regard the brain as active in its relations with the body, which by comparison is seen to be passive. This may be seen in the physiological observation that the brain is the terminus of the senses, and so is the area where interpretation of the senses takes place, as well as being the place of the initiation of response. Awareness of the parts of the body occurs through the intermediary of the senses. Thus to that degree the brain may be thought to be apart from the body. In this also the idea that the brain is the site of the mind would be favoured.

Considering this argument, wouldn't it make more sense, in a neuroscience oriented to Spinoza's ontology, to think of the mind and the brain together - the limbs and organs being extraneous parts which have their influence on the brain, but do not enter into essential contact with it? That is, that thinking, or the operations of the instincts, is a brain process and as such does not involve the rest of the body? I think the answer to this must be negative, and that mind must be considered as related to the body as a whole, as I shall now argue.

Vygotskii has argued that modern psychology has been an outgrowth of cartesianism, and though either one side or the other (that is, mental or physical), is favoured, both sides are never entirely removed. Similarly, I think the neuroscientific position regarding the relation of mind and brain shows a quasi-Cartesian bias which is still an example of mind-body duality, except that the term should now be brain-body duality. I say this

because the neurosciences regard the functions or operations of the brain as those aspects of the body - of the objective body - which are to be correlated with or regarded as mental. But I think there is a problem here. In this way of looking at the relation of mind and body, one is one's brain feeling - which brings to mind Artaud's mocking comment, "All I want is to feel my brain". Why are we unable to?

Where in the brain does feeling take place? To say that the feeling is the connection of one activity of a part of the brain as monitored by another part²⁴, leads to some difficulties, for Spinoza. If the mind is the idea of the body, and one is aware of the changes of the body, then why is one not aware of the brain in the way that one is aware of one's foot? Do we suppose that different cell clumps influence each other? This would seem to suppose that these cells, in that they are grouped together, influencing each other, are collectively the seeing or feeling or perceiving. Since the whole brain is not the thing which perceives, the notion of a perceiver is pushed back another degree. In neurophysiological terms, the attempted reduction results in an appeal to the ludicrous notion of the 'grandmother cell', as Professor Moscovitch has called it²⁵. When one sees one's grandmother, there is not one cell whose response is the sum total of the recognition. To suppose it so would be to introduce a sort of Leibnizian monad, a being without extension, a point. This gains us nothing. The idea of the grandmother cell is used to illustrate the notion that perception which leads

to recognition must be a process, and not the simple response of one cell. The notion that only a few cells participate in recognition is similarly flawed. Awareness cannot be as easily made sense of in the neurosciences as Bunge would have it.

For both Spinoza and the neurosciences awareness is of the body. Self-awareness, for James as for Spinoza, is the brain in its interaction with the rest of the body. This point alone should be enough to establish that the emphasis on mind-brain to the exclusion of mind-body is mistaken. One is aware of a desire inasmuch as one, say, feels thirsty: this is in part the imagining of water in the mouth; the idea of pleasure if one would get it; the pleasure of imagining the going and the going itself; the pain of not presently having, and so on. Thirst does not appear to us as a clump of neurons in the mesencephalon signaling another clump in the medial forebrain, which in turn signals areas in the visual and other cortexes. But though it does not appear so, thirst is those, in terms of brain processes. That is of course not the whole story. Thirst must also be the nerves as they exist in the portion of the body referred to (for instance, the mouth and throat), and to those portions as they have influenced the nerves, and as they continue to influence. Thirst must also be whatever other aspects of the body are relevant, though they may not be part of the central nervous system. For instance, the brain is informed of the condition to which the response is thirst by the blood which carries its account of fluid to salt ratio: the blood and the message being

the same. This analysis of thirst shows that thinking is more than the activity of the brain - thinking is of the whole body.

Joining Spinoza's language with modern, the preservation of the ratio of motion and rest of the body, which is what gives the body its identity, is to be found in the interplay of bodily organs, blood, nerves, neural structures and so on. A condition of the body which needs to be changed in order that the body preserve its ratio of motion and rest will be felt by us as a desire - that is, as an appetite of which we are conscious. This is willing (as the discussion in Ch. 2 established) - that is, the changes of the body produce the various emotions, and inasmuch as these are appetites of which we are aware, we experience emotions such as sadness or fear or rage or the many kinds of pleasure. All these may be seen as involving willing.

This awareness is what we call introspection: a seeing into our bodily condition. From seeing how we behave, we see how we think.

Only by introspecting can we determine both the state of our body and the state of our mind. Because introspection, according to the foregoing analysis, is of such central importance in scientific investigation, I will briefly sum up the argument against introspection as made by Hebb²⁶, and by Kolb and Wishaw²⁷.

Kolb and Wishaw's rejection of introspection goes so far as not to mention the word in their index. They opt for a rather pure form of behaviourism. They write that

...fewer mistakes are made when observable events are studied than when hypothetical or mental constructs are studied.²⁸

This argument assumes that mental events are not observable.

Hebb argues this explicitly. He defines introspection as

...direct self-knowledge by the mind, the immediate awareness of [the mind's] own content or activity.²⁹

and

...immediate self-knowledge or self-observation by the mind. (his italics)³⁰

The note to this passage says,

The whole question is whether the mind can know itself in such an inward way with no intervention of a sensory process.

Hebb's argument is that there can be no immediate awareness of the mind's content or activity, and that therefore there is no such thing as introspection. He implies here that the only observables are sensory elements. However he elsewhere approvingly quotes George Humphreys: "We perceive objects directly, not through the intermediary of "presentations", "ideas" or "sensations".³¹ In either case the former position, of sensory elements, would not preclude Hebb's acceptance of perception. His agreement with Humphreys is a position strikingly similar to Spinoza's. Also, Hebb's critique of mind, which is empiricist-materialist, depends on saying that mind can only be known through a study of the physical, that is, of the body and the things which influence the body. To this proposition I think Spinoza would guardedly agree, arguing in return that the body is known to us only in as much as we are

mindful of it: nothing can be physical and not mental, nor mental and not physical - that is, all things have both mental and physical aspects.

But Hebb restricts knowledge of the mind to knowledge which results from an inference of what is known of the body. The restriction arises from his definition of introspection as empty of any content. But Hebb has simply replaced 'introspection' with 'inference'. For example he says this about perception.

What one is aware of in perception is not a percept but the object that is perceived, what is given in imagination is an illusory representation called an image. This latter, and the percept, are inferred. They undoubtedly exist, as atoms do likewise.³²

While Hebb overtly rejects introspection, this passage shows the concept of a 'process of inference' has here replaced introspection. I can see no reason not to think that inferring is not the same as what happens when we introspect: ideas of ideas are the whole of method, as Spinoza says in TdIE33. Though introspection is always of the body, still the body cannot be known without the ability or process called introspecting or being self-conscious. Hebb defines introspection in such a way that the case against it may be easily made. But if one uses the term in the sense of "to see in", one may see that there are elements of the idea which are necessary truths for us. Indeed, in saying that 'percepts' and 'images' - and likewise, one assumes, 'inferences' - undoubtedly exist, Hebb is in agreement.³⁴

A possible problem for a neuropsychology in accord with Spinoza's psychology lies in the question of whether all mental events are inferred from the body. The answer must be no, for thought is in context (in terms, as it were), of the condition of the body, and not in some representational aspect of the mind considered as wholly apart from the body. Even representation is to us, says Spinoza, a condition of the body.

The terms 'introspection', 'willing' and 'purpose' have been said to be of importance in relation to one another. Introspection is of the individual - is self-referential - is an activity which involves the whole of the body, and not merely the activity of the brain. For Spinoza, one discovers oneself as a network of emotional reaction and activities. These, as I have said before, are pleasures and pains, and the striving for a particular state is based on them. This description of the origin of emotions is similar to that of James on instincts, and thus relates to willing, which arises out of the essence of the individual (or - what defines it, as Curley would say).

In considering emotion and instinct I described in one instance how the physiology of fear is useful to an organism, thus showing that some emotions at least have a purpose. That passage concerned James, who does not deal much with this question of emotions and purpose. For him emotions are to some degree a side-effect of perception and action. But as was discussed in ch.3, emotions and instincts have for James a physiological similarity in origin. Though James glosses over

this, we may conclude that the emotions and the instincts are also similar in that they both appear for some purpose. James does specifically say that some emotions appear because of random physiological effects of the nervous system. The discovery of special brain centres for the emotions, though, lends weight to his other conclusion - that some emotions originate out of some specific condition and have some specific effect. He mentions the readiness for flight in fear as an example. Another example is the fear of the dark which children and many adults have. If the child had never before encountered darkness and the instinct of dread which it calls forth, then on the first occasion the child would immediately know something unguessed at before, namely, that darkness was a thing to be feared. Another point is that we know that when we perceive something and feel an emotion, this in turn influences our perception³⁶. Emotion may tell us something about the perceived object, as it does of darkness, and also something about ourselves in relation to the object - for instance, that we are a thing which fears. Yet another example of emotion and instinct is love, which tells us something about the loved object, and about ourselves, and which influences our interactions with the object. A biological purpose may easily be seen in these, and in connection to this one can easily imagine a state of being which one may call striving or desire.

Spinoza's psychology provides an account of the emotions in which striving is seen to depend on pleasure and unpleasure, and in which appetite - correlative to striving - follows from a

decrease or increase of one's level of activity. Purposiveness and the awareness of the efficacy of effort are thus connected ideas in that they are both concepts which arise out of our awareness of the interconnectedness of the parts of the body. Following James and Spinoza, purposiveness or the awareness of the efficacy of effort might be called intelligence³⁷.

I think this theory of striving represents a significant development for the theory of psychology. The neuro-sciences have failed to explain, among other things, the feeling that one is purposive, or that one's effort has an effect in one's actions. For example, consider the - from the viewpoint of consciousness - passive and active motions, both purposive, which take place in childbirth: the distinction to be made is between what takes place automatically, without effort, and the increased amount of 'push' when one tries to do something. In childbirth, muscle contractions occur at regular intervals with no conscious decision that they should occur. This is certainly purposive, but is a kind of purposiveness which can be distinguished from the purposiveness exhibited when a woman consciously tries to push the baby down the birth canal³⁸.

The issue of freedom is important here. I have argued a position on Spinoza's conception of the body/mind which is not shared by all commentators. I think this area is a major source of difficulty in Spinoza scholarship. In some commentators the physicalistic perspective is very strong, and so is the tendency not to consider the subjective as important. Lachterman even

acknowledges that his attempt to see the unity of Spinoza's Ethics "sub specie corporeitatis" is too one-sided, and leads to the ignoring of some important elements of the Ethics. The primacy of the physical in his exposition brings him to see the primacy of the physical person in the relation of body and mind. He even calls this relation "the familiar thesis of psycho-physical parallelism" wherein "thinking has no objects all its own"³⁹. This is a position which has unfortunate consequences in interpretation.

Lachterman cites 3p2,

Body cannot determine mind to think, nor can mind determine Body to motion or to rest, or to anything else (if there is such).

He responds:

If this is the case, then it is no longer clear how the mind can act in any way to bring about its liberation or felicity, given this theory of causal independence...⁴⁰

Lachterman interprets Spinoza as having a position which entails the mind's bondage.

If one keeps in view the monistic position, one can see that Lachterman's conclusion is clearly not the way Spinoza conceived of the relation of body and mind. Spinoza holds rather that our thoughts are not merely representations of the body's actions, but are the actions themselves as we live them or know them. Thus the reason mind cannot determine the body to act is because it is the body as an acting thing. Similarly, body cannot determine the mind to think because its actions constitute the mind's thinking. As is argued above (cf. the discussion

concerning 2p13sch and so forth in ch. 1), the more a body is able to do, the better the mind is able to think; and also, the more the body is able to be affected by things the better it is able to perceive.⁴¹ And to object that the mind has no objects all its own is as futile as objecting that the body has no ideas all its own. Neither objection is true, for the mind's object is its own body.

The idea of the subject or subjective has been largely left unexplicit in previous discussion. I use it now, along with some other ideas, such as will, which have been previously discussed, as an aid to exploring this problem of the identity of thinking and corporeal action.

The entrenchment of physicalism and the denial of subjectivity's importance is as evident in psychoneural monism as it is in Lachterman. Psychoneural monism might accept the argument that an account of subjectivity is necessary, but would still reject Spinoza's insistence on an epistemological dualism. Hebb, for one, argues that the 'self' is a concept which develops in babies, but for him this does not mean that a description of the life of the self should be undertaken as if it were a field with its own rules, as Spinoza would require. Similar topics as consciousness and other problems of mind/body relation are suggested by the neuroscientists as being solved by analyzing the structure of the central nervous system. If thinking and corporeal action are indeed the same thing, as Spinoza says, then a possible criticism may be that seeing the world as (or as if)

under the attributes of thought and extension is a way of looking at the world which is 'hard-wired' (so to speak) in the brain. The significance of this lies in the claim that, given the total nature of the identity, any description of corporeal action would imply thinking, which would therefore not need to be considered on its own - this would also be true of the subjective element.

Given the identity theory at 2p7, conceiving nature in two aspects would have to be hard-wired. But the implications are quite different for Spinoza than they are for the neurosciences. Spinoza discusses a kind of neuroscientific thesis which is presented to him by Oldenburg, the secretary of the Royal Society. Oldenburg suggests that thought is a corporeal action, and nothing more. Spinoza replies, for the sake of argument,

...be it so, though I by no means grant it: you, at any rate, will not deny that extension, insofar as it is extension, is not thought...42

For psycho-neural monism, if this passage were to be accepted, the implication would be that the subjective or thinking aspect of a person is not the same as the physical. This it will not allow.

In agreement with this point drawn from Spinoza is Thomas Nagel, who says that the idea of a subject is not reducible to an objective position such as psychoneurology⁴³. For Spinoza, only if we were to see the neural hard-wiring of the 'felt emotion' as true in one's own experience would psychoneural monism make sense. This would be to see the hard-wiring not as the cause of experience but as experience itself. We would then consider both

the experience and the brain process as real. To do this would be to adopt the two different ways of thinking about the world which Spinoza requires, which would include all of: subjective and objective; thinking and extension; mind and matter; will and conditioned state, as legitimate scientific enterprises.

This conclusion entails that objective points of view, or the views in which we make ourselves object, are at the same time subjective points of view. We can never be rid of ourselves: whenever we think, we include the existence of our body in that thinking - that is, we include our body and its relations with other bodies. Likewise, all thinking about the body includes the mental - that is, the idea of the body in its relations with other bodies.

The reductionist position, whether utterly confused or pure in its intent if not in its result, leads to a beheading, as it were, of the emotions. I have argued that the language of the neuro-scientists can only be understood by them from their own point of view; their point of view comprises mental and physical realms necessarily. The objectivist or positivist movements have situated the subject, albeit obscurely⁴⁴. As one of the modern variants, psychoneural monism attempts to circumvent the problem of the subject, and it too fails. There can be no reduction which would eliminate the subjective, or the objective. This shows once more that the epistemological dualism which Spinoza espouses is an improvement on the prevailing neuro-scientific view. As I've already mentioned, Vygotskii claimed that the

program for the 'science of reactology', whether physiologically or phenomenologically oriented, could be traced to Descartes. Any new psychology which hopes to deal successfully with the emotions, or any aspect of human life, must turn to something like Spinoza's theory for, at least, its method, if not its metaphysics.

A host of problems confront the neuroscientist, whatever the metaphysics adopted: What sense is to be made of the idea of the self or individual? Involved in this notion of self are some of the key terms we have already discussed, such as 'will', 'consciousness' and 'idea'. Another major difficulty lies in regarding one's neural processes as real in the way that we experience them. Spinoza's ontological monism may be of help in trying to sort these problems through. The above discussion is an attempt to apply some elements of Spinoza's system to these problems in a primarily methodological way. I will now continue to explore the problems by being more explicit about ontological issues.

The notions of an individual requires an examination of the concept of conatus. In physiology this means appetite. The physiology of appetite requires the notion of homeostatic of functional processes. The body's level of activity must rise or fall in accordance with a particular state or nature to which the body strives to become. This becoming may in some cases be called a striving to maintain. The question arises: does the maintenance of a particular form proceed according to an innate

ordering? or does the body's coming into existence as a particular form establish the basis of the self-maintenance?

Spinoza's remarks on the psychic state of stones is appropriate here (cf. the discussion at the end of chapter.2). A stone tends also to persist in its being; it strives to maintain itself. One might say that its existential strategies are different from ours, and in some ways more limited. Humans are capable of doing many things, of being very powerful, because of our complexity. Rocks have the advantage of longevity - a lucky human will last a century: only a long sleep for most rocks. No essential or qualitative difference exists between a human and a stone. Thus striving arises out of the coming into being of a particular form, or as Spinoza more often says, of a certain ratio of motion and rest.

This attempt to answer the question of the feeling of purposiveness has some success. For instance, the reason a body strives to maintain itself once it has been set in motion is that it has some inertia. But though this is clear, there is a tension between the problem of effort and the implication of innate ordering of particular forms. A question which remains is whether the organization of the body proceeds according to a plan, as appears to be the case. Films made of neural processes at the developmental stages have addressed this issue. One such showed a growing axon moving among other cells, other nerves, and eventually latching onto one - the leading part of the nerve suddenly increased its speed and moved quickly toward a neuron

farther away than several others. When they touched a tremor of impact could be seen running along the cell body. After a few moments the two separated. The one which had been moving continued what appeared to be its search. Why this occurred was said to be not understood. 'Why', here, means not only "how?", but also "to what purpose?". Good answers to the problem of purpose will be difficult to provide until the psycho-physical mechanisms of the events are understood better. Aside from this, we cannot doubt that at times we feel ourselves to be purposive, active, free. With this the discussion may enter fully into the realm of the ethical, which for Spinoza is where we must aim.

Some writers in the behavioural sciences have produced work of a prescriptive and ethical nature: Skinner, Beyond Freedom and Dignity, and Wilson, On Human Nature, are examples. These works tend to be concerned with objective or physiological processes. Given a Spinozistic point of view, we see that it is impossible to form a complete picture of human nature in this way. Any discussion of human nature or the physics of the body assumes a metaphysics and implies an ethics⁴⁵. What may be drawn from the above texts is that the concept of human activity is a frail one. A discipline which attempts to avoid speaking of the subject as a reality-to-oneself would miss this idea of activity or power, for one knows how activity feels in a way quite different from what one knows of it from our observation of other people.

But for all that it is necessary to speak of such things as subjectivity, purpose, activity, freedom and so forth, it is difficult. How the feelings of purposiveness, of activity, are to be described in a neuropsychological way, is difficult to say⁴⁶. Spinoza advocates the theory that as we experience our striving, so do we think, understand, and will. In physiological terms we may make the first of these connections, which is that as our bodies undergo our appetites, so do we act. But what are the physiological terms that we shall employ for willing? In the foregoing I have tried to show that a physiology of willing is at least possible, but it is not yet clear. And as for understanding - intuitive knowing, no terms seem ready to hand.

This, I think, is where an advance in the understanding of one realm may contribute to understanding in the other. We conceive of new phenomenological explanations at the same time as new physiological explanations.

As to the directedness of thinking, going according to what we call interest, Hebb says that interest proceeds along lines that

...immediately command a wide organization of cerebral activity because it excites cell assemblies with manifold associative connections.⁴⁷

The result of this activity, behaviourally, is that we follow the object of our interest - we attend more closely, as for instance, when walking through fields we catch a glimpse of a snake. Thus our thinking, willing, and understanding may all be found in the actions of the body. We are as yet unable to say just how this

comes about. Nonetheless, to the body we return, whenever we feel at a loss to explain ourselves - our consciousness and experience are physiological processes as well as mental ones. I think this entails that the origin of the body is the origin of the mind, meaning that body and mind are one thing conceived in different ways. From this it also follows that the brain is not the locus of the mind, though the brain is a very important part of the object of the mind. Therefore, mind is the idea of the body.

Notes
Chapter One

1. I deal largely with Hebb because of his influence on the field.
2. Cf. William James, Principles of Psychology.
3. So the self was for Hume, who never found anything but sensations. J.V.Canfield, work in progress (personal communication).
4. Cf. Hebb, Essay on Mind, p.8.
5. From a lecture by Prof. Lester Krames, Fall '75, "Comparative Psychology: Lectures on Ontogenetic Behaviourism", Erindale College, University of Toronto.
6. An example of the struggle involved is this: "The notion of an image is an uncomfortable one from the scientific point of view. Images are private events, unobservable to all but the person in question. We must rely primarily on verbal reports or other measures of overt performance to make inferences about imagery." Psychology: Principles and Meanings Cf. also Hebb, Organization of Behavior; Drives and the CNS; and Essay on Mind.
7. Lanyon and Lanyon, Behaviour Therapy. That they don't define thought behaviouristically as described above is evident in the passage on "thought-stopping" at p.52. In this, the subject reports that she is thinking of something which is not present, ie. the thought is private, in her mind only.
8. Prof. John Bristol, private communication.
9. Hebb, Essay on Mind, p.4.
10. Hebb, Organization of Behavior, p.158.
11. See for example the works of Sperry, Eccles and Penfield.
12. Hebb, Essay on Mind, p.2, cf. preface quotation above.
13. Again, refer to the preface quote by Hebb.
14. Refer to Morgan, What Nietzsche Means; quoted from the Nachgelassene vol. XVI #11.
15. Unless it is said that perception is this 'stimulus-response', in which case the following argument against neuropsychology applies here also.
16. Krames op. cit. Cf. also Paul Churchland, Matter and

Consciousness, p.68,69.

17. A. Shalom, "Prolegomena to what is called the soul", Rev. Metaphysics

18. Quoted in James, A Pluralistic Universe, lecture iv.

19. This point is dealt with further in ch.3.

20. The behaviourist wishes to eliminate mental terms because there is no mind (cf. J. Hunter, "The concept "Mind"). A possibility that is sometimes used is taking the statement "I'm in pain", and replacing it with "C fibers are firing". Other examples are in Hebb, Essay on Mind, and Bunge, The Mind-Brain Identity Problem.

21. I should point out that Spinoza says there are infinite attributes of substance. But what he means by this is difficult to determine. Seemingly thinking and extension are the only two we know.

22. For example, Clark, Psychological Processes and Neural Mechanisms.

23. Spinoza's metaphysics is called epiphenomenalism by Lachterman, "Physics of Spinoza's Ethics".

24. The notation refers to Spinoza's Ethics part 1, axiom 4. This is fairly common notation. Other letters used are d=definition; p=proposition; dem=demonstration; sch=scholium (note); l=lemma; app=appendix. Those who work with Prof. Curley's translation are at a slight disadvantage because the text does not indicate in what part of the Ethics any one page, or proposition, is (this was the publisher's doing, and was done against Prof. Curley's objections*). Because noting the part number has become standard, this can be somewhat awkward. I feel that knowledge of the Ethics is improved if one readily knows where in the work a proposition appears. In other respects, Curley's translation is excellent, and all quotations appearing herein are from his book, unless otherwise indicated.

* Prof. Curley said this at a conference in honour of Prof. Savan, held in Toronto Mar.31, Ap.1&2, 1989.

25. Lachterman, already cited.

26. Prof. Nagel's book is in main a commentary on Kant. This argument, however, is drawn from a section in which Nagel 'applies and extends' Kant's ideas. cf.p236.

27. *ibid.*, p.243.

28. *ibid.*, p.238.

29. *ibid.*, p.238.

30. Counter examples exist - Freud, for one. Yet even Freud hoped psychoanalysis would eventually be founded on, or its language reduced to, physiology. He tries to do this in a work not published until recently: Project for a Scientific Psychology.

31. Hebb denies that it is possible to introspect. His usage is peculiar. He means that we cannot find any idea that doesn't refer to the body. For Spinoza, this is quite alright. Since this point constitutes a major difference in the two psychologies, upon which much is at stake, it will be taken up in some detail in ch.4.

32. See 2a2 in Curley's translation, which gives a line from the Dutch, "We know that we think". A similar thought is contained at 2p43.

Chapter Two

1. Professor Savan notes that Spinoza also says that God may not be called one, since number is an aspect of things and God is no thing. The references are to 1p7 where he says that there can only be one substance, and to Ep. 50, to the Cogitata Metaphysica, and 1p8sch., where he says God cannot be numbered. (Private communication)

2. Hallet, Savan, Wetlesen and others argue that the activity of Spinoza's concept of substance must be stressed. Therefore the attributes must also be so considered (just as they are considered in our understanding of them - but here the problem is representing the thought in language). It is argued by Wetlesen that "thinking" is a better word to use than "thought". Wienpahl similarly argues that "extending" should replace "extension". The former is appropriate in many instances, I think, but the latter is an unhappy choice, for it brings to mind arms, or ladders, extending. Though Spinoza's physics bears many similarities to modern physics (viz Lachterman's paper, "The physics of Spinoza's Ethics"), the concept of an expanding universe is ruled out, seemingly, by his adherence to the notion that Nature has no vacuum. If Nature has in it no vacuum, then Nature already encompasses all space. Nevertheless, the activity of extension needs to be stressed, as Spinoza does at 3p3, and at many other places, where he speaks of bodies.

3. At this point I do not want to begin the argument, which appears later; I wish only to cite the main text on which the argument is based. The same is true of the subsequent point wherein 5p7 is mentioned. Neither of these points can be very

readily demonstrated, but are worth mentioning at this stage.

4. Letter #27 (in Curley): "...Ethics...as everyone knows, must be founded on metaphysics and physics."

5. The Latin homo cogitat and the Dutch mencken denken are usually translated as "man thinks". I prefer Wienpahl's non-sexist translation.

6. The N.S. (collected works in dutch--nagellata schriften) glosses 2a2 with "...or, to put it differently, we know that we think". For a comment on the origin of this gloss see Curley, p.442, note 3.

7. 2p26 reads "The human Mind does not perceive any extended body as actually existing, except through ideas of the affections of its own Body."

8. In a letter to Balling (#17), Spinoza describes the conditions in which direct knowledge of another's mind would be possible. I don't know whether to take this seriously, nor have I seen it mentioned in the literature.

9. In positivistic psychology the problem for Spinoza would be to show the opposite--that we have minds which must be considered, in a way, as being distinct from bodies.

10. Wolfson, vol.2, p.46.

11. Taylor, Some incoherencies in Spinozism, in Kashap, p206.

12. Radner, D., "Spinoza's theory of ideas", Phil. Rev. #80.

13. Wetleson, stressing the activity of things, says that the word conception is better than 'concept'. He thinks the latter is too static a term. cf. The sage and the way.

14. In Hebb's Essay on mind (p.27), Pierce is cited as the originator of this notion. Perhaps the notion is not original with Spinoza either. Descartes thought that the body was the cause of (context) of passive emotions.

15. Whitehead, Adventures in Ideas, p.226.

16. Cf. letter to Boxel, Ep# 56, "In philosophic reflection...we must take care not to admit as true anything which is only probable. For when one falsity has been let in, infinite others follow." (Elwes p.386-7)

17. cf. Hallett, Substance and its Modes (a chapter in his book on Spinoza; and Bennett.

18. 5p34dem. "An imagination, then, is an affect (by the gen. def. of Aff.) insofar as it indicates the present constitution of the body.

19. Lachterman (already cited) says that Spinoza's use of 'rest' at 2lemma3c shows that the concept is roughly equivalent to that of inertia. However, Spinoza describes both a body at rest and a body in motion as continuing in the same manner until affected by another. So while Spinoza does employ the notion of inertia, it seems to be of both motion and rest. Lachterman also points out, to much better effect, that inertia is an important concept in Descartes' physics, where it is called conatus and translated as 'tendency'. This would seem to have some bearing on Spinoza's development of the idea of conatus as it is joined with will.

20. Spinoza praises the atomists at letter 56. In contrast, there appear to be some Platonic elements to his philosophy. Both Curley (in Spinoza's metaphysics) and Hart (in Spinoza's Ethics bk. 1 & 2) call Spinoza platonic. As well, Bennett suggests that Spinoza employs a field metaphysic as a foundation for the physics of motion and rest. This would make him similar to Descartes and other 17th and 18th physicists, whom Leclerc calls neo-platonic for just this reason.

21. Lachterman offers a similar argument to Bennett's concerning the field metaphysic, and points out that for Descartes, from whom Spinoza got much of his physics, the "condition of motion and rest in the plenum rob parts of matter of any identifiable individuality" (p.81).

22. That is, the essence of the human mind is eternal, and since essence is conatus, and conatus is the nature of the individual, then the individual is in some sense eternal, or indestructible.

23. Bennett calls this "one level up from" the metaphysical. Stating the relationship spatially works as analogy, but fails if taken too literally. For example, Bennett offers a similar argument to explain idea ideae: he compares ideas to disks piled one on top of the other. I argue below that this is a misrepresentation of Spinoza's position. As for the metaphysical/physical relationship, to take Bennett's analogy literally would be to conceive of substance as a foundation or something which 'stands under', which seems too material.

24. Conatus in Elwes and Shirley is endeavour; in Curley it is striving. In the commentaries the latin is often used; some use the anglicized version--conation (cf. Wetleson, Hallett).

25. Vol. 2., p.46. Wolfson's discussion of forma and idea, of Aristotle and Descartes, is well put, though I think it emphasizes Aristotle too much. For example, Wolfson dismisses the platonic idea and upholds Aristotle's because the latter is "not

something static and eternally fixed". This seems true of the actual essence of the body, which responds to change, but leaves aside the consideration that the actual essence of the body is in God and exists eternally (5p22), which is quite platonic.

26. The way this point is stated is quite similar to the passage at 1p32cor2, where Spinoza says that "will and intellect are related to God's nature as motion and rest are". The passage is corollary to a proposition concerning the lack of freedom of the divine will.

27. Simple as it is, the explanation is in a way not far from current research. Memory and learning are now thought to be dependant on both the functional and structural alterations of the nervous system. Nerve impulses which move along a frequently used pathway (a cell assembly, as Hebb calls it) are travelling waves of liquid fat. The solution contains charged particles which cross the membrane of the cell. The more a pathway is used, the more arises a cell growth around the axon of the neuron, called myelin sheathing. This has the effect of increasing speed and strength of transmission. So the modern account, just as with Spinoza's theory, there is both the movement of liquids and a change in the soft parts - not quite as Spinoza envisioned it, but curiously close.

28. This seems to be a discrepancy in Spinoza's account, since earlier it is said that the movement of fluid in relation to the soft parts is the correlate of the idea that the thing is present. So to say one can have the image and not the idea of presence seems contradictory.

29. Geuroult, vol.2, p.144.

30. Willing is first grouped with desire and appetite because all are aspects of conation. Then willing is considered as an idea without respect to the thing thought of (that is, considered in itself), and as such is contrasted with the emotion of desire, which is the idea with respect to the thing thought of. But this is to be proved.

31. Cf. Bennett, p.241 and p.261.

32. Shirley has "that is" where Curley has "or".

33. Bennett says that desire is involved in all emotion (p.269), with which I agree. He also says that there is no distinction between desire and pleasure. I don't think this can be right, for it leaves out displeasure.

34. This also shows that desire arises out of the constitution of the body. While homeostatic mechanisms may operate without our consciousness, they nevertheless are the result of appetite, and

it is possible to be conscious of this, as one may be conscious of one's breathing.

35. Curley discusses the controversy of this passage at p.71 (and the accompanying note) of his Behind the Geometrical Method. He thinks that the passage affirms the animateness of all things, and not just living things as Bennett has suggested.

36. Wolfson, vol.2, p.61.

37. I would argue that Wolfson is incorrect in his reasoning, not only for the above reasons, but also from arguments based on internal and related aspects of the passage in the letter. Note that Spinoza says we should 'conceive' of the stone--he does not say imagine or feign. This might simply be loose usage, but if it is it would be unusual, for he generally employs conceive in situations where that which is thought is clear and distinct. The word imagine is used more loosely, and occurs in situations where one might have expected conceive (as is argued above, this is because imagination may be a strength. cf 2p17sch). So for Spinoza to use conceive here implies that what is said of the stone is accurate - clear and distinct.

Another consideration is the mood of the passage. The Elwes translation has the passage in the subjunctive. Neither Curley nor Shirley have it so - they use the active mood. If the latin were in the subjunctive, then this would show the passage to be fanciful; and if in the active, then the passage is at least ambiguous. The verb in question is in the active mood in the latin.

38. Bennett says that this concept relates to 1p25, which sounds good.

38) Hallett, Aeternitas, p.260.

Bennett argues that a great flaw in the Ethics is that it "contains not a trace" of a theory of selective consciousness. Spinoza does not hold that all ideas are conscious. The theory of ideas of ideas, as Bennett argues, seems to be about consciousness. But for every idea there is always an idea of that idea. Despite this, we are not conscious of all that we are. I find Bennett's argument compelling, but I am unable to agree, for it seems to me that part 5 of the Ethics (especially 5p39) points to a theory of selective consciousness. It is also here that Spinoza speaks of freedom; so the two are to be connected. This point is discussed further just below.

Chapter three

1. Bunge, M., The Mind/Brain Identity Problem.

2. I am contrasting these with Spinoza, for he holds that the mind exists in its own right, that it is the cause of other ideas, and that these causal relations have their own laws apart from the physical. These matters will be taken up in chapter 4.

3. The emergentist theory of mind sounds as if it makes room for mind in psychology, and it does, but only to a limited degree. Hebb, for instance, rejects introspection. This will be discussed below, mainly in chapter four.

4. James, Principles of Psychology, p.449.

5. *ibid.*, p.382.

6. *ibid.*, p.372.

7. *ibid.*, p.372.

8. *ibid.*, p.381.

9. *ibid.*, p.451.

10. *ibid.*, p.442.

11. *ibid.*, p.442.

12. *ibid.*, p.442.

13. *ibid.*, p.472.

14. *ibid.*, p.473.

15. Reticular Activating System (RAS): This portion of the brain, located far down the brainstem (indicating a greater age, or primitiveness - cf. The Evolution of Intelligence, Jerison), is a 'without which nothing' of brain activity.

16. *ibid.*, p.442.

17. *ibid.*, p.454, note from Lange.

18. *ibid.*, p.454.

19. Beatty, Introduction to Physiological Psychology, p.234.

20. Note that James, unlike the account of his theory given by Beatty, is not speaking only of the viscera.

21. *ibid.*, p.545.

22. *ibid.*, p.455.

23. Merely as a point of interest, I note that James is here sketching a theory of hysteria quite similar to Freud's, in a book of wide popularity, published in 1890, that is, prior to Freud's own work on the subject.
24. *ibid.*, p.456.
25. *ibid.*, p.253.
26. James says "Sensible objects are thus either our realities or the tests of our realities" (vol.2, p.301). James says of sensation that it is an abstraction never realized. Rather, "The consciousness of particular material things to sense is ... called perception" (vol.1, p.76). Therefore where James says 'sensible objects', he means also 'the perceived world'. 'Nucleus' of reality expresses the thought 'realities or tests of realities'.
27. *ibid.*, p187, vol. 1.
28. *ibid.*, cf. p.224, vol.1.
29. Howard Leventhal, "A Perceptual-Motor Processing Model of Emotion", p.4.
30. James, *op. cit.*, p448.
31. *ibid.*, p.448.
32. *ibid.*, p.451.
33. *ibid.*, p.452.
34. *ibid.*, p.472.
35. A reflex arc is "a neurological unit involving a receptor neuron and an effector neuron which are capable of mediating a stimulus-response sequence." Chaplin, Dictionary of Psychology
36. James' theories essentially are, as will be shown below.
37. The argument touched on briefly here is expanded considerably in the next chapter.
38. Curiously, Solomon (The Passions) takes Cannon's refutation of James to be conclusive.
39. Beatty, Introduction to Physiological Psychology, p.234ff.
40. Except in his section on Pleasure and Pain as the well-springs of Action in the chapter on the will.

41. R. Plutchik, The Emotions: Facts, Theories and a New Model.
42. cf. M. Arnold, "Perennial Problems in the Field of Emotion".
43. *ibid.*
44. Hebb, Organization of Behavior.
45. The awareness of it is more likely the recognition of the event, which we then call pleasure. But the recognition depends on the event, and is not pleasure in itself.
46. Behavioral and Brain Science, vol.#5,#3, p.407.
47. Arnold, already cited, p.179.

Chapter Four

1. Published in Studies in Soviet Thought, 1971. Originally written in Russian in the late 1920's.
2. Groen, *op. cit.*, p.102.
3. *ibid.*, p.107.
4. *ibid.*, p.108
5. Hebb, Organization of Behaviour, p.xiv. Hebb's later views change, as shall be seen.
6. Pribram, "Emotion: Steps Toward a Neuropsychological Theory", p.4 in Glass (ed.), Neurophysiology and Emotion.
7. Refer to: Studies in Soviet Psychology, 1973.
8. Vygotskii, p.375.
9. Hebb, Organization of Behaviour, p.xvii.
10. Organization of Behavior, p.xviii.
11. The Nature of Thought, p.25.
12. Bunge, *ibid.*, p.166.
13. Klein (ed.) The Nature of Thought, p.1
14. Hebb, Afterward in Bunge, *op.cit.*, p.220
15. Vygotskii, p.381.

16. *ibid.*, p.381 Concerning the issue of whether Spinoza's exposition is predominantly of the physical rather than the mental, Vygotskii takes the opposite position to Lachterman and Bennett.
17. Hebb, Essay on Mind, first chapter.
18. Spinoza's main argument for the necessity of considering the world in two ways (and each in themselves) is at 2p7sch.
19. As I pointed out above, 2p7sch implies that the parallelism is a two way street. It is not simply that mind mirrors body, but also that the body reflects the mind.
20. *ibid.* p.381
21. Nietzsche, Beyond Good and Evil, #19. Nietzsche's notable appeal to the physiological for the explaining of mental phenomena is evident in this passage, which shows his method to be just like James's. The appeal to the physiological is said to be an example of Nietzsche's positivism, but this passage shows an unpositivistic point of view.
22. The reader may wonder how this argument would be affected if Curley's comment concerning the etymology of perfection were taken in to account. Curley says that the Latin is simply the past participle of
 perficere, to complete or finish, [which is]
 itself derived from facere, to make or do. (Refer
 to perfection in the index of Curley's
 translation.)
 Thus perfection is simply something done or finished. Curley implies, I think, that perfection has in it no sense of meaning good, or of 'the Good'. I find this problematic, for it seems to me that Spinoza's rejection of the valuation of reality is a warning about human bias - that we have limited, self-centred, viewpoints. What we call good is what is good for us, says Spinoza, and we ought not value reality only in that way.
 However, Spinoza also accords value to reality in calling activity good in itself (as is plain if one considers what he says of activity at 5p33). In this sense he is rather Platonic, and rather Christian also in identifying reality with God's understanding love.
23. Hebb says this in The Nature of Thought, p.22.
24. Luria, The Working Brain, p.341.
25. cf. Bunge, already cited.
26. Moscovitch, Lectures in Physiological Psychology, Erindale College, University of Toronto, 1977.

27. Hebb, Essay on Mind.
28. Kolb and Wishaw, Fundamentals of Human Neuropsychology.
29. *ibid.*, p.74.
30. Hebb, "The Conceptual Nervous System", p.174
31. Hebb, Essay on Mind, p.18
32. *ibid.*, p.19
33. C.N.S., p.174 I find this reasoning peculiar. An atom is a theoretical entity, of which no one can be certain of the nature. The image we have of a thing is, unlike the atom, not theoretical, because we do experience imagination.
34. "...it may be inferred that Method is nothing but a reflexive knowledge, or an idea of an idea; and because there is no idea of an idea, unless there is first an idea, there will be no Method unless there is first an idea." (para. 38)
35. Other examples of the inference of the mental are to found in Chomsky's Language and Mind.
36. Schacter's experiment wherein naive subjects were given epinephrine demonstrate this.
37. James calls intelligence the effect of the nervous system as it operates in a variety of ways to accomplish its ends. Refer to Principles... vol.1, p.8ff.
38. Heather Burton, a midwife with experience in hundreds of births, estimates that there is eighty per cent greater force when a woman is consciously pushing as compared to the contraction which occurs without effort. This difference is observed in instances in which the woman has had a spinal epidural - an operation in which all sensation from the mid-torso down is stopped by a spinal anaesthetic. When this is done, the woman must be told when a contraction begins and ends, and so also when to push and when not to. (personal communication)
39. Lachterman, *op. cit.*, p.95, 96.
40. *ibid.*, p.95ff
41. I don't wish here to draw a distinction between thinking and perceiving, as perceiving is a kind of thinking.
42. Letter 4.
43. T. Nagel, "What is it Like to be a Bat", in Mortal Questions.

44. This contrasts with T. Nagel's conclusion, that an objective theory will abandon the point of view of the subject. It seems better to me to conceive of objectivity in the way that Merleau-Ponty does, in which some one has a (n infinite) variety of views on something.

45. Spinoza says in a letter to Oldenburg (#17) that any discussion of ethics is founded on physics and metaphysics.

46. I have recently come upon a book called Meaning and Purpose in the Intact Brain, by Robert Miller, which is a work of neuropsychology holding a similar methodology to what I have been arguing for. Concerning the narrowness of outlook of the neurosciences, he says, "...it is high time that a theoretical subdivision of the neurosciences should emerge, complementary to the various experimental disciplines." (his italics, p.5) One must point to such as Hebb and say the theoretical subdivision has long been in existence, though it has perhaps been repressed. Of course Miller is advocating an approach wider than Hebb's and other psychoneural monists, but there are echoes in his work of Magda Arnold, James, and so on. And like Spinoza, a lynch pin in his theory is that there is no causal connection between the subjective and the objective. He says, "If we think we can speak of reality at all, we have a right to speak of both subjective reality (an individual view) and objective reality (a collective view). These two views are of course closely related, although a complex transformation may sometimes be needed to display the relationship. It is when we turn our gaze to the human brain that the two viewpoints are juxtaposed most starkly: for at once we must reckon not only with the objective facts of structure and causal relationship in the brain we are observing as experimenters but also the subjective fact of inner experience in our own brain. It is at this point that our philosophy crystallizes. Somehow we must be able to reckon with the relationship between these two facets of our nature, so that it becomes valid to seek features in the anatomy or physiology of the brain which match with subjective descriptions. In the process the logic we employ will not be like that used in explaining causal relationships. What we observe in the brain is so utterly different from what we experience with the brain that any suggestion of causal interaction between the two would destroy our concept of causality. However we may use a more abstract form of logic, a logical transformation without causal implications." Miller then advocates a technique of mapping from one field to another, an analogy which James also makes.

47. Hebb, The nature of thought, p.25.

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