

Critique of the Psycho-Physical Identity Theory

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Critique of the Psycho-Physical Identity Theory

*A refutation of scientific materialism
and an establishment of mind-matter dualism
by means of philosophy and scientific method*

ERIC P. POLTEN

Preface by
Sir John Eccles

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There is of course an entrenched materialist orthodoxy, both philosophic and scientific, that rises to defend its dogmas with a self-righteousness scarcely equalled in the ancient days of religious dogmatism.

Sir John Eccles, *Facing Reality*

I had rather believe all the fables of the Legend, and the Talmud, and the Alcoran, than that this universal frame is without a mind. And therefore God never wrought miracle to convince atheism, because his ordinary works convince it. It is true, that a little philosophy inclineth man's mind to atheism; but depth in philosophy bringeth men's minds about to religion.

Sir Francis Bacon, 'Of Atheism'

It will be a right, decisive, true, and final statement to assert, as we did, that soul is prior to body, body secondary and derivative, soul governing in the real order of things, and body being subject to governance.

Plato, *Laws*

To my parents

Preface

There are two fundamental problems in science and philosophy. One is whether all the sciences including biology and the neurosciences can be reduced to physics. The other is the nature of our conscious experiences, and their relationships to events in our brains. Are they to be identified with these brain events, being merely an aspect of them as given to the 'owner' of the brain? Or have they an independent world of existence, being in correspondence with brain events, or at least some brain events?

The program of the radical materialists is to reduce all sciences to physics and to reduce conscious experiences to the science of brain states and hence to physics. Thus everything would be reduced to properties of matter. Their efforts to deny or to ignore conscious experiences have collapsed because of its intrinsic absurdity. Hence materialists, both radical and 'tender-minded', accord conscious experiences a ghostly recognition as appendages or properties of brain states. Essentially the same philosophical doctrine masquerades under a variety of names: epiphenomenalism, parallelism, the double aspect theory, the identity theory or the psycho-physical theory of Feigl, Pepper, Smart and Armstrong and the theory of biperspectivism of Laszlo; but it is more subtle and sophisticated in its most recent forms.

The most important exponent is Feigl, who for over forty years has built up the identity theory in such a flexible and appealing manner that it has achieved a wide acceptance not only amongst philosophers, but also amongst neuroscientists. In fact one can say that it has a special appeal to neuroscientists because it gives them assurance that the brain states they are investigating are all that matters in the performance of the brain. They can proceed with their scientific investigations on the brain just as on any other material object without having to be bothered with the possibility

of disturbance by non-material mental states. In fact all scientists are materialists and reductionists methodologically. The difference is that some of us, including myself, have a contrasting philosophy of anti-reductionism. We do not subscribe to the tremendous extrapolation from our present level of scientific investigation and understanding that is required by philosophical reductionism as expounded for example by identity theorists. This apparent conflict between our scientific methods and our philosophy becomes sharpened for those of us who are scientifically engaged in studying the highest levels of the brain – the human cerebral cortex in conscious subjects, as is for example done by Penfield and by Sperry. Both of these distinguished scientists have developed philosophies in which consciousness is given a dominant role in modifying brain states, which is a dualist-interactionist concept comparable with that developed by Polten.

This brief introduction will justify my statement that this book by Eric Polten is on the most important problem confronting man, namely the relationships of his conscious experiences to the events in his brain. It is a problem that I have wrestled with since adolescence. Its challenge motivated me to become a brain scientist, going to Oxford to work under Sherrington. But I also have continued to study the various philosophical solutions of the body-mind problem or brain-mind problem as it should be called. The rest of the body is recognized as being merely ancillary to the brain. I was early attracted by the brain-mind dualism and interactionism of Descartes, though of course updating it and greatly modifying it in the light of modern neuroscience. I was encouraged to discover that leading neuroscientists such as Sherrington, Adrian and Penfield were dualists, but discouraged by the failure of so many philosophers even to understand the brain-mind problem as it could be seen by a neuroscientist. Meanwhile I had discovered that Popper was also a dualist and interactionist, and gradually there was a change in the philosophical climate of opinion from the nadir represented by Ryle's destructive criticism of the 'mind concept' which he completely rejected in his book *The Concept of Mind*.

It is remarkable that in the original version of this manuscript Polten makes very few references to Popper and none to me! The many references to us both occurred after a lucky accident of discovery, though the main text and arguments were not changed. The circumstances are so extraordinary that they are worth recounting. At the request of a philosophical

friend behind the 'iron curtain' Mr. Polten's father had instructed a bookseller to dispatch to him a number of books, including my book *Facing Reality*. It so happened that this latter book was mistakenly sent to Mr. Polten's father along with the invoice, so he glanced through it, and discovered to his amazement how close his son and I were in our respective philosophies. This case of mutual recognition required such a lucky chance though we had lived for years as close as Toronto and Buffalo!

I was sent the manuscript and we have met on two occasions for long discussions. What enthuses me about this book is that it represents on the positive side a dualism and interactionism very close to the philosophy that I had independently developed. Furthermore, I particularly liked the clear exposition of the three components of the world of conscious experience: outer sense, inner sense and pure ego. This is an important contribution, not so much for its novelty as for its range of development, and it has a good scientific base in modern developments in the brain sciences. We need this clear and imaginative thinking in order to reduce the diversity of conscious experiences to meaningful order. Polten illuminates the concept of pure ego by reintroducing the Kantian word 'apperception.' Pure ego does not perceive itself, the recognition is due to apperception.

Of course a theory of dualism entails the problem of interaction. How can mental events and brain states interact? The failure of dualists, including myself, to give any precise explanation of the postulated interaction has led to the denial of dualism. My view is that brain science is at too primitive a level to allow more than speculations that cannot at present be tested adequately. For the same reason there is no satisfactory account of interactionism in this book. Yet the denial of interactionism means the denial of free will, as both Polten and I will agree. We have to learn to live with problems beyond our present understanding, and not impulsively to deny either the existence or the reality of such problems. As I read many philosophical writings I am led to believe that the learned authors must at all costs propose a nice tidy theory. Feigl is an exception in that he dares to live provisionally with 'nomological danglers' as he calls them!

I agree with Polten that in criticizing the psycho-physical identity theory he should concentrate on the philosophical arguments and concepts of Feigl, who is its most distinguished advocate. To my knowledge this book embodies the most comprehensive and sustained attack on this important theory. To give point to the criticisms there is a wealth of quotations from Feigl's writings. In this way the reader is kept informed

XII Preface

of the points under attack. It is impressive that Polten illustrates and supports his argument from a wide range of distinguished philosophers right back to the pre-Socratics. He thus displays his affiliation with the long stream of philosophers from Aristotle to Kant, Whitehead and Popper.

It could be objected that the intensity of critical attack is not in good academic taste. But it has to be recognized that this disputation is deeply motivated. Is not the theme under consideration the most important for man, reaching to his fundamental nature? If Feigl is right, then man is no more than a superior animal, entirely a product of the chance and necessity of evolution. His conscious experiences, even those of the most transcendent creative and artistic character, are *nothing but* the products of special states of the neural machinery of his brain, itself a product of evolution. If Polten is right, man has in addition a supernatural component, his conscious self that is centered on his pure ego. Thus with his spiritual nature he transcends the evolutionary origin of his body and brain, and in so far could participate in immortality.

But at a more mundane level there is in this disputation a fundamental issue for man. Has he free will or is it an illusion? By taking thought can he bring about changes in his brain states? As a neurophysiologist I must insist that, if our belief in our free will is valid, our thoughts must be able actually to effect changes in the activities of the neural machinery in certain special regions of the cerebrum – that is there must be an effective mind-brain action. If Feigl is right, this cannot be true in reality, only in appearance. We may feel that we are bringing about actions in accord with our conscious desires, but these feelings are themselves nothing more than brain states, so free will is reduced to some brain states bringing about other brain states, which is purely a neurophysiological happening explicable completely in materialist terms. We are caught in a deterministic bind. As MacKay reasons, we are right then to think we are freely willing; whereas an external observer can fully account for all actions at a deterministic level. On the contrary, as expounded by Polten, it is of the essence of dualism that mind does effectively act on the neural machinery of the brain in willing, which is precisely the position of the distinguished neurophysiologist, Sperry. Of course it is still recognized by both Polten, Sperry and me that by far the greater part of our actions are determined by neural operations alone. Thus the disputation of this book is vitally concerned in establishing that freedom of action is not an illusion, but

that on the contrary we have in varying degrees freedom to choose between genuine alternatives of action and in so far are responsible for our actions.

Specially to be commended in this book is the author's clear understanding of the causal theory of perception. There is often amongst philosophers a misunderstanding of the problems presented by perception because they are not cognizant of the neurophysiological events concerned in perception and the vital role that learning plays in all perceptual experiences. Furthermore, there are interesting developments when perception is considered in relation to the concepts of outer sense and inner sense.

Every aspect and every detail of the psycho-physical identity theory of Feigl has been subjected to close scrutiny in this book. In section after section Polten claims to have refuted this theory in a whole series of philosophically based arguments. These sections are specially directed at the philosophers concerned, and demand answers. From this challenge and these answers new levels of understanding should arise.

I like to think that philosophers will at last realize that they cannot effectively engage on disputation in the field of brain and mind unless they become experts in the brain sciences. I am appalled by the naiveté of concepts and of programs that are suggested, for example the cerebroscope and auto-cerebroscope of Feigl and Pepper. Of course there is always the covering phrase 'in principle', but it is pure fantasy that some instrument could provide a meaningful 'picture' of the events in a brain at the time of some conscious experience. At a conservative estimate, even for the simplest perception, each of tens of millions of neurones would be engaged in patterns of impulse discharges, the whole ensemble having unimaginable complexities in space and time. In our present understanding meaningful activities occur when clusters, probably of tens or hundreds of neurones, are in collusive operation with discharges above or below the noise level of the incessant background discharges. This pattern in space and time is 'written' by sequential synaptic actions of neurone to neurone each stage occupying only about one thousandth of a second. Thus the whole assemblage of neurones engaged in some evolving pattern has a dynamic complexity beyond instrumental display at any time into the foreseeable future. The attempts to correlate electroencephalographic records (the EEG) with moods are necessarily at a crude level because the EEG is merely an averaged record of field potentials generated in some unknown way by millions of neurones. It is time for the cerebroscope and

XIV *Preface*

auto-cerebroscope to be relegated forever to the world of science fiction.

When Mr. Polten kindly invited me to write this Preface he recognized that I was critical of several sections of his manuscript and invited me to expound these criticisms in my Preface. I think it inappropriate to engage in such criticisms in the Preface. It is sufficient for me to note that for me the positive achievements in this manuscript far outweigh the defects. The book as it stands is a record of the intellectual achievements of Mr. Polten with I gather no significant help from his supposed mentors in the University of Toronto. He has built this conceptual edifice during years of intensive study ranging over the whole history of philosophy. No doubt, as with all conceptual edifices, there will be reconstructions of parts, but it is my belief that it represents a very important contribution in that it so strongly challenges the last tenable philosophical position of the materialist monists.

John C. Eccles

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Mouton Publishers at The Hague have done all an author could possibly hope for. While over the centuries fashions among persons practicing priestcraft have changed all the way from the black frock to the white coat, the spirit of Holland in aiding those who refuse to bow to mindless dogmatism has remained the same. The book has been published with the help of a grant from the Humanities Research Council of Canada, using funds provided by the Canada Council.

Table of Contents

PREFACE BY SIR JOHN ECCLES	IX
ACKNOWLEDGEMENTS	XV
INTRODUCTION	
A. Style and purpose of this book	1
B. The essence of the identity theory	10
C. Outline of the argument of this work	16
CHAPTER I. ON THE SENSE AND REFERENCE OF 'MENTAL' AND 'PHYSICAL'	23
A. The nature of the distinction between sense and reference in the philosophy of language	23
1. Towards a mature philosophy of language	23
2. Some shortcomings of Frege's theory of meaning	26
B. Referential criteria for distinguishing mind from body	35
1. The problem of perception	35
2. Feigl's distinctions between mental and physical	40
3. Some safe criteria for differentiating mind from body	64
CHAPTER II. OBJECTIONS TO THE IDENTITY THEORY ON METHODOLOGICAL GROUNDS	77
A. The characteristics of and problems surrounding referential or ontological identity	77
1. Linguistic identity	77
2. Logical identity	79
3. Metaphysical identity	81
4. Empirical identity	84

xviii *Table of contents*

B. The impossibility of proving referential identity by presupposing empiricist epistemology and employing scientific method	96
1. Privacy and public observability	96
2. The metaphysical nature of science itself	108
3. The pragmatic, non-ontological nature of science	130
CHAPTER III. OBJECTIONS TO THE IDENTITY THEORY ON EMPIRICAL GROUNDS	141
A. The chief traits of the mental, largely based on introspective evidence	141
1. The pure ego	141
2. The pure ego, attitudes, and events in the mind	153
B. A comparison between the mental and the physical	164
1. The general empirical dissimilarity	164
2. Replies by identity theorists to objections – Rejoinders	178
3. The animism of matter and physicalism	205
4. The irreducibility of anything but physics to physics	219
CONCLUSIONS AND PROSPECTS	236
A. The methodological impossibility of identification	236
B. The empirical disconfirmation	245
C. The metaphysical implausibility of identity	248
D. Interactionism	258
SUMMARY	271
BIBLIOGRAPHY	275
AUTHOR INDEX	282
SUBJECT INDEX	287

Introduction

A. STYLE AND PURPOSE OF THIS BOOK

In these introductory remarks, I will first outline and justify the method of the following examination of the psycho-physical identity theory, as well as indicate my chief aims. Secondly, a brief exposition of the main thesis of physicalism will be provided. And thirdly, a preview of my own positive standpoint on the mind-body problem to be developed in this work will be sketched. Those readers who wish an overall orientation regarding the present critique of scientific materialism right from the start are advised to peruse the 'Table of Contents', and could also read the 'Summary' at the end of this book.

I will concentrate on – but by no means confine myself to – the essay by Herbert Feigl of monograph dimensions found in the *Minnesota Studies in the Philosophy of Science*, Vol. II, pp. 370–497, published in 1958. Recently, a separate reprint has appeared, entitled *The 'Mental' and the 'Physical': The Essay and a Postscript* (1967). In addition to the *Essay* and the *Postscript*, other writings of Feigl in this immediate area, as 'Physicalism, Unity of Science and the Foundations of Psychology' (1954) and 'Mind-Body, *Not* a Pseudoproblem' (1961) will also be extensively drawn on. The reason for my concentration on *Feigl's* work is that in my opinion his identity theory is the best formulation of materialism which has so far been produced over the ages that materialism has been propounded. Unlike almost all materialists, Feigl is aware of most of the problems – and will stare them in the face. *If there are more circumspect and penetrating materialists, where are they?* For centuries people have sought to establish materialism by means of science – but almost no one has *even attempted* to show *how*. And yet the great part of the 'educated' public already

2 Introduction

equates the mental with the physical as if it were an established fact.

Notwithstanding all the difficulties which will be unravelled, there can be no doubt that Feigl's intellectual product is a considerable advance over that of one of the greatest materialists of all time, Thomas Hobbes, whose 'very explicit' statements mean little, and prove even less:

The world, (I mean not the earth only, that denominates the lover of it *worldly men*, but the *universe*, that is, the whole mass of things that are), is corporeal, that is to say, body; and hath the dimensions of magnitude, namely length, breadth, and depth: also every part of body, is likewise body, and hath the like dimensions; and consequently every part of the universe, is body, and that which is not body, is no part of the universe: and because the universe is all, that which is no part of it, is *nothing*; and consequently *no where* (*Leviathan*, 672).

Formulations of materialism no more sophisticated than such dogmatic statements will not be examined in this book. And before any new materialism is seriously put forward, the present scientific refutation of materialism and proof of mind-body dualism must be answered.

In regard to his work on the mind-body problem, Dr. Feigl, Director of the Minnesota Center for the Philosophy of Science, informs us:

I have concerned myself seriously and repeatedly with the problem for about thirty-six years; ... I have studied most of the contributions from thinkers of many lands in modern and recent philosophy of science; and ... this is my fourth published attempt to arrive at an all round satisfactory clarification (*Essay*, 20).

Feigl claims to be representative of, and in some ways to lead, a particular philosophical school and outlook the nature of which we will run across continuously. He seeks 'a solution that is to be satisfactory from the point of view of contemporary science as well as in the light of modern philosophical analysis' (*Essay*, 20). This does not mean, however, that Feigl is only concerned with the problems which arise within the philosophical presuppositions accepted by him. His aim is 'to provide a solution that is *synoptic* in that it would render a just, consistent, and coherent account of all relevant aspects and facets of the issue' (*Essay*, 20). And a '*synoptic*' solution is indispensable, the inherent manifoldedness of the mind-body problem having often been noted: 'Western philosophy consists very largely of variations on the theme of body-mind dualism' (Popper, 'Objective Mind', 25).

The best of the most recent, as well as the not so recent philosophers

whose views have a 'family resemblance' to Feigl's physicalism will also be examined by me. Although I was still not even alive when Feigl was already well advancing on this problem, I have also made every effort to acquaint myself with empiricist thinkers. And I do not see how it can be held against me from a scientific point of view when I add, that I have sought to master as well philosophers whose methods and conclusions are quite different from those of contemporary analysis. Still, not biographies of certain personalities, but doctrines and arguments are to be discussed here. The quality of the result is the thing that is decisive; the history of its formation only insofar as it sheds light on the product.

There is a traditional main dividing line in philosophy, especially in modern philosophy, namely empiricism versus rationalism. Feigl himself draws it frequently, constantly putting forth positivist contentions against what he calls 'metaphysics'. 'Relapsing into ... rationalistic metaphysics ... logical empiricists have consistently opposed' ('Physicalism', 266). The words employed here are less important than the fact that there are indeed two streams throughout the history of thought, accurately enough denominated 'rationalism' and 'empiricism', and I will often refer to them in these terms. Nominalistically-minded readers may object to a procedure which they usually label 'labeling', 'dubbing', or 'name-calling'. Yet *all* language is universal, including the concepts which point to the *infimae species*; universality, or at least generality, is part of the very idea of anything scientific. It should not be forgotten that whenever a generic unity is singled out, specific differences are by no means denied or overruled. The difference is only one of breadth of application: the more general a statement, the more particulars are covered, *not* the less. And by no means only rationalists hold a view such as this. 'Always that knowledge is worthiest,' wrote Bacon, 'which is charged with least multiplicity' (*Advancement*, 258). And in the words of J. S. Mill:

With regard to exceptions in any tolerably well advanced science, there is properly no such thing as an exception. What is thought to be an exception to a principle is always some other and distinct principle cutting into the former ('Definition', 438).

Notwithstanding the fact that Feigl himself seeks to overthrow the rationalist stream, on his own account of what he has done, it seems he has undertaken no more than study the contributions from thinkers in 'modern and recent philosophy of science' (*Essay*, 20). The body of his

4 Introduction

Essay, as well as his seemingly impressive bibliography (of 565 entries), further confirm this self-estimate. It is evident that he restricts himself to recent discussions which already roughly share his outlook, and largely shields himself from even becoming acquainted with any views basically different. '*Qui respiciunt ad pauca de facili pronunciat*: [they who take only few points into account find it easy to pronounce judgement]' (Bacon, *Advancement*, 192). *Contrarium eadem est scientia!*

The present procedure of ignoring literature which may contain arguments and counterexamples which ought to be considered is of course quite typical of too many contemporary philosophers who share what may be broadly termed an empiricist outlook. In his *Ludwig Wittgenstein: A Memoir*, Malcolm tells us what is amply corroborated in the writings of Wittgenstein, his teacher and friend: 'Wittgenstein had done no systematic reading in the classics of philosophy' (20). Hans Reichenbach, another leading proponent of the empiricist outlook, in *The Rise of Scientific Philosophy* insists:

Those who work in the new philosophy do not think back; their work would not profit from historical considerations ... Like all historical research, it [i.e. the history of philosophy] should be done with scientific methods and psychological and sociological explanations (325).

At least Reichenbach follows his own instructions, for he shows almost no knowledge of the 'speculative philosophy' he so speedily dismisses. And in keeping with scientific objectivity, everything is merely historical except the present *time*, which will stand still forever, and psychological or psychoanalytic explanations apply to anyone but scientific philosophers. And as we will see only too often, not even the idols of the new science are properly read. 'In Bacon,' insists Reichenbach, 'empiricism has found its prophet' (*Scientific Philosophy*, 84). Yet the main aim of that 'prophet' of empiricism in fact was to

have established for ever a true and lawful marriage between the empirical and the rational faculty, the unkind and ill-starred divorce and separation of which has thrown into confusion all the affairs of the human family (Bacon, *Instauratio*, 435).

Similarly, the explicit view of Einstein is quite different from that of his 'disciples' among scientific philosophers, who ignore anything but recent 'science'.

Nearly every great advance in science arises from a crisis in the old theory, through an endeavor to find a way out of the difficulties created. We must examine old ideas, old theories, although they belong to the past, for this is the only way to understand the importance of the new ones and the extent of their validity (Einstein, *Physics*, 75).

I unswervingly refuse to share here the narrow purview endemic to the philosophers under examination, whose professed attitude clashes with the very essence of the scientific method they at the same time wish to give complete sway. As Cicero already insisted, a person who is ignorant of history lives forever in the childhood of man. Even Aristotle maintained:

For our study of the soul it is necessary ... to call into council the views of those of our predecessors who have declared any opinion on this subject, in order that we may profit by whatever is sound in their suggestions and avoid their errors (*De Anima*, 403 b 20–23).

I dare say, Aristotle's philosophical perspicacity can well measure up to that of Feigl, Wittgenstein, or Reichenbach, and, excepting Plato, no one of Aristotle's predecessors was as accomplished as Aristotle himself. 'The advance of knowledge consists, mainly, in the modification of earlier knowledge' (Popper, *Conjectures and Refutations*, 28). Frequently therefore I shall allude to distinguished thinkers who hold similar or *different* positions from the conclusion I am steering to. For, in the words of Bacon, 'to those that seek truth and not magistrality, it cannot but seem a matter of great profit to see before them the several opinions touching the foundations of nature' (*Advancement*, 266). Moreover, the references to other people's doctrines orient the reader to positions which I cannot, for lack of space, always fully make clear.

I am not of the opinion that it detracts from my own efforts if any of my views have already often been foreshadowed. As the ancient proverb has it, *Nil novi super terram*. At this stage in the philosophy of mind, one should be wary indeed of any propositions which have not at least been adumbrated. But I am frankly appalled at those people who ignore the work of their predecessors and then profess originality, or worse, claim to have refuted or overcome philosophies about which they appear to know almost nothing. Not only do those 'critics' seldom destroy the foregoing structures, but frequently those buildings are still higher than their own. As Sir Karl Popper in the 'Preface to the English Edition, 1958' of his *The Logic of Scientific Discovery* had the courage to remark:

6 Introduction

If we ignore what other people are thinking, or have thought in the past, then rational discussion must come to an end, though each of us may go on happily talking to himself. Some philosophers have made a virtue of talking to themselves ... No doubt God talks mainly to Himself because He has no-one worth talking to. But philosophers should know that they are no more godlike than other men (16–17).

Although for my part I have not overlooked the ‘science’ which is made so much of, I have not there found the same assurance as a Lenin:

The doctrine of introjection is a muddle; it smuggles in idealistic rubbish and is contradictory to natural science, which inflexibly holds that thought is a function of the brain (‘Lenin’, 232).

As for logical empiricism, Feigl assures his readers (or himself): ‘There is nothing dogmatic or ritualistic in our movement. It is *not* a religion’ (‘Logical Empiricism’, 4). Still, Feigl also writes in this same article:

One of the greatest logicians of our time (I shall for special reasons leave his name unmentioned) shocked me considerably when in a conversation many years ago he branded the sharp distinction between analytic and synthetic as *the* metaphysical prejudice in logical empiricism (6).

As is well known, this dichotomy forms one of the cornerstones of modern logical empiricism, just as it did already – in a different nomenclature – in the classical empiricism of Hume (6).

About the reaction towards those who go further and transgress upon, as Feigl puts it, ‘the taboo of the synthetic a priori’ (‘Logical Empiricism’, 8), I for my part have considerable first-hand experience (though I leave my name at the beginning of this book). What Bacon wrote of the philosophy of Aristotle surely no less holds true of his own ‘followers’:

True consent is that which consists in the coincidence of free judgements, after due examination. But far the greater number of those who have assented to the philosophy of Aristotle have addicted themselves thereto from prejudgement and upon the authority of others; so that it is a following and going along together, rather than consent (*Novum Organum*, 495).

Since scientific materialists seek to establish their thesis of psychophysical monism by an appeal to the findings of science, we must take into account what leading scientists are propounding. And unlike most of the physicalist friends, I am not ignoring those scientists who are most directly

concerned with our problem: neurophysiologists. In neurophysiology as in other areas of scientific endeavor, there are few scientists capable of moving in the difficult borderland between science and philosophy, and yet two towering figures have emerged: Sir Charles Sherrington, the founder of modern neurophysiology, and his one-time student Professor Eccles – later Sir John Eccles. (It is a fitting tribute to these men that both of them received the Nobel Prize in Medicine for their life-work in neurophysiology.) Already in his Waynflete Lectures delivered at Oxford in 1952 – at the time of the heyday of Ryle's *The Concept of Mind* and other forms of behaviorism – Eccles stood up and insisted:

Cartesian dualism and interactionism... become valid working hypotheses in the attempt to obtain a further scientific insight into the nature of man. This was essentially the theme of Sherrington in his remarkable book *Man on his Nature* (1951). I am attempting to follow the lead that he gave. To use a popular phraseology (Ryle, 1949), I am arguing that, before we exorcise the 'ghost' from the 'machine', we should at least carefully scrutinize the machine. We may then find where the 'ghost' comes in, or at least how the 'ghost' could come in (*Neurophysiological Basis*, vi).

No serious enquirer into the ultimate nature of man and the universe can fail to take into account such work in the very key area in question. For my part I can however only touch upon some of its highlights; the wealth and detail of neurophysiological findings forbid a full discussion in the present book.

One note of explanation for my extensive use of quotations is called for here. As will be encountered only too often in the course of this critical examination, Feigl's views are vague, and as I will attempt to show, not seldom contradictory in their most fundamental aspects. Given this situation, I think it is fairest to let Feigl and other protagonists of physicalism present their case in their own words as far as possible. Mistaken interpretations never lead to refutations, and my verbatim reports of the doctrines of my opponents are designed to assure the reader that their thesis has not been falsified. Then too, I have encountered again and again, that analysts answer their critics by the convenient reply, 'You do not understand me', and leave it at that. Direct quotations will allow any reader to judge for himself whether I treat their thesis accurately, and leave the burden definitely on him to substantiate any charge of misunderstanding.

Still, the well-known charge of quoting out of context may still be

8 Introduction

brought against me. But I already freely confess that usually I do not look much beyond the passage cited, for were I to glance much further, something conflicting with the given propositions is often found. If I were asked to attribute something to the opposition only after a well-rounded view was presented, I should frequently be at a loss to say anything about them at all. Similar qualifications hold for the quotations I gather in *support* of my contentions. When I outline a doctrine of some thinker who in any way aids my argument, I never mean to imply that he does so in all respects; frequently he will be against many of my other propositions. In short, by means of direct quotations I wish to obviate as far as possible the tiresome yet all too frequent disputations about 'what X really said.'

With their analytic-synthetic distinction (overlooking the fact that these terms are pitifully vague), analysts have a common frame of reference with which to support any of their arguments (though strangely, if anyone has ever systematically established the claim that even logic is analytic, I would like to see the treatise). Similar methodological frameworks are Aristotle's *Organon*, Bacon's *Novum Organum*, Descartes's *Discourse on Method*, the *Essay*, *Principles*, *Treatise*, and *System of Logic* of the Classical British Empiricists. Again, comparable things have been produced by Kant with his *Critique of Pure Reason*, by Fichte and Hegel by their respective *Science of Knowledge* and *Science of Logic*. Phenomenologists look to Husserl's *Ideas*, Marxists above all to Lenin's *Materialism and Empirio-Criticism*. There are of course many other works of this kind; I make this list only to illustrate the point that I do not have one myself. The philosophical climate of the time certainly does not make the production of one an easy task. And even if I had a systematic epistemological and methodological work, if the unfamiliarity of the conceptions is a sufficient ground to keep readers from the books of Hegel, how much less time must anyone be willing to spend to familiarize himself with my doctrines. Yet surely, Bacon states an important truth when he says that 'confutations cannot be employed, when the difference is upon first principles and very notions and even upon forms of demonstration' (*Novum Organum*, 468). And in the words of A. J. Ayer, 'Without a sufficient measure of agreement on the question of truth and the conditions of knowledge, the argument cannot proceed' ('Philosophy', 541).

Given the present conditions, I propose to provide something that contemporary analysts call a 'dialectical confrontation' in the main part of this work. Since the notion of 'dialectic' as employed by analysts is hardly

clearer than the 'notorious' one of Hegel, I interpret it in the sense as used by Plato. Socrates continually has his opponents put forth some proposition X, but then from that and other propositions also accepted by his opponents he has them deduce a proposition which contradicts X. Similarly, I accept certain (though not all!) methodological and substantial propositions of the party I contend with, but then from the propositions cited I draw opposite conclusions. Such a mode of refutation is compelling to one's adversaries, since it takes place within their own avowed framework; still – and here I am not joining Socrates in his mock-modesty – not only negative but positive conclusions can be established by means of this procedure.

I do not mean to imply that the Platonic way is the only way, or even the best way, of establishing or approximating truth which is, or ought to be, the end of all philosophical discourse; its advantages are largely psychological. It is again difficult to put the reasons better than our 'father of modern science':

For were it not better for a man in a fair room to set up one great light, or branching candlesticks of light, than to go about with a small watch candle into every corner?

It is the harmony of a philosophy in itself which giveth it light and credence; whereas if it be singled and broken, it will seem more foreign and dissonant (Bacon, *Advancement*, 184, 267).

But nonetheless, let me again emphasize the nature and strength of the critical method which I will use, as outlined by another masterly expounder of scientific method:

What characterizes the empirical method is its manner of exposing to falsification, in every conceivable way, the system to be tested. Its aim is not to save the lives of untenable systems but, on the contrary, to select the one which is by comparison the fittest, by exposing them all to the fiercest struggle for survival (Popper, *Logic*, 42).

The main aim of this book is therefore an internal refutation of psychophysical monism, and the positive establishment of dualistic interactionism by means of, or at least not in conflict with, scientific method – all of course only in the light of present-day knowledge. 'Scientific conclusions are and should be about what is known and not about what might be

10 Introduction

known, let alone about what is not known' (Jaki, *Brain*, 75). And yet what we *know* to be disparate *now* can never be proven to be identical in the future.

B. THE ESSENCE OF THE IDENTITY THEORY

I will now proceed to give an exposition of the most basic features of the theory to be criticized, using as much as possible Feigl's own words, and those of other writers. This outline may seem needlessly repetitive. But as will be seen later, I am afraid almost to the point of tediousness, Feigl will shift the main points of his thesis to and fro, rather than admit that any possible criticism is decisive. And I do not see how inductivist empiricists can object if I produce considerable evidence for what I take to be their essential point.

It is perhaps not inappropriate to show first how two officially neutral observers interpret the identity theory, and then give textual proof from Feigl that their interpretation seems correct. In his article on the 'Mind-Body Problem' in the recently published *Encyclopedia of Philosophy*, J. Shaffer sees it this way:

A version of materialism that is much discussed today is the identity theory, recently presented and defended by J. J. C. Smart and H. Feigl, among others. The identity theorist uses the familiar philosophical distinction between significance and reference, or connotation and denotation, to make the claim that mentalistic and physicalistic expressions differ in significance or connotation but will turn out as a matter of empirical fact to refer or denote one and the same thing; namely *physical* phenomena... Formulated in terms of *de facto* identity rather than logical identity, this theory survives many of the standard refutations of the older materialisms... It is still too early to say whether this hypothesis is probable, but it is a hypothesis that many scientists take seriously and use to guide their research (339).

(For three recent anthologies on the identity theory, see Presley, *Identity Theory*; O'Connor, *Modern Materialism*; and Borst, *Identity Theory*.)

V. C. Chappell, editor of the anthology *The Philosophy of Mind*, puts it this way:

It is important to be clear as to what precisely the identity theorist is claiming. He says that sensations, pains for example, *are* brain processes, and this is the

'are' of strict, numerical identity. But sensations and brain processes are identical as a matter of fact; and not in virtue of the meanings of the terms 'sensation' and 'brain process' ('Introduction', 19).

Feigl himself informs us: 'In the development of my own formulation of the identity theory I was stimulated by the work of Schlick and by continued discussions and correspondence with Carnap' ('Physicalism', 255). He then quotes from a letter of Carnap, written in 1933:

'The whole "riddle of the universe" [Schopenhauer's "Weltknoten", i.e., the mind-body problem] seems finally to come to this: one will have to make clear to oneself in an appropriate manner that brain processes are, on the one hand, *objects* of scientific sentences, and on the other hand *causes* of the emission of sentences. This, in itself by no means mysterious, situation should then be so formulated that people with emotional (not to use the offensive word "meta-physical") headaches can accept it more easily. As to whether these aches can be completely eliminated is a psychological question, or perhaps a practical task of psychoanalysis' ('Physicalism', 255).

At the present time, according to Feigl, the mind-body problem is not to be dissolved or resolved by ordinary language philosophy, and is not a pseudo-problem. Nor is it to be relegated 'to the limbo of speculative metaphysics' (*Essay*, 3).

The identity thesis which I wish to clarify and to defend asserts that the states of direct experience which conscious beings 'live through', and those which we confidently ascribe to some of the higher animals, are identical with certain (presumably configurational) aspects of the neural processes in those organisms (*Essay*, 79).

I provide the following quotations to indicate the sound basis for my claim that Feigl seeks to identify what he calls experiential data, phenomena, *sensa*, *qualia*, knowledge by acquaintance, or raw feels, with something else, whatever that something is. (Of course, the difficulty already arises how the synthetic identification hoped for could possibly be with something *else*, if there is to be a numerical identity; and if it is not with something else, how the proposed referential identification could be contingent.) 'The *philosophical* or *logical* crux of the *identity* thesis' is this:

We have stressed that the (empirical!) identification of the mental with the physical consists in regarding what is labeled in knowledge by acquaintance as a

12 Introduction

quale of direct experience as identical with the denotatum of some neurophysiological concept (*Essay*, 94).

Again, Feigl insists: 'The data of experience *are* the reality which a very narrow class of neurophysiological concepts denotes. I admit this sounds very "metaphysical" ' (*Essay*, 86). Once more, he says:

According to the identity thesis the directly experienced qualia and configurations are the realities-in-themselves that are denoted by the neurophysiological descriptions. The identification of the denotata is therefore *empirical* (*Essay*, 90).

A 'precise statement of the physicalistic identity theory' runs as follows:

It claims that there is a synthetic (basically empirical) relation of systemic identity between the designata of the phenomenal predicates and the designata of certain neurophysiological terms ('Physicalism', 255).

The central puzzle of the mind-body problem is the logical nature of the correlation laws connecting raw feel qualities with neurophysiological processes (*Essay*, 49).

If the reader already tires of the repetition, then I have established the point, that the identification claimed is between *directly experienced phenomena*, or involves *at least a phenomenon as one term*. We should however not overlook this qualification of Feigl:

The raw feels of direct experience as we 'have' them, are empirically identifiable with the referents of... some neurophysiological concepts. As we have pointed out, the word 'mental' in present day psychology covers, however, not only the events and processes of direct experience (i.e., the raw feels), but also the unconscious events and processes, as well as the 'intentional acts' of perception, introspective awareness, expectations, belief, doubt, desire, volition, resolution, etc. (*Essay*, 78).

But notwithstanding this qualification, it is not clear how we could know at all about unconscious events, if we did not have some sort of empirical evidence. Feigl himself says that 'scientifically minded thinkers' hold the belief 'that there is nothing in heaven or on earth (or even beyond both) that could not ... conceivably be confirmed or disconfirmed on the basis of sense perception' ('Physicalism', 239). Yet perhaps Feigl is saying that everything which exists in the world is *in principle* directly perceivable;

whereas in fact, in scientific practice, we need linking statements from unobserved theoretical entities to directly perceived data. In any event, I will interpret Feigl throughout this critical examination as holding that *at least one term* of the identification is a given phenomenal datum. (Need we, however, formulate the thesis as liberally as that? For again – and Feigl is not necessarily denying this – what *else* could be *identical* with that phenomenal givenness but that very same *sensum*.) Although alternative interpretations will be considered after we have examined the issues in some detail, I will find no good reason to abandon the above as the main contention of Feigl.

There is however a second major formulation of the identity thesis which differs from the above in that theoretical entities are given greater emphasis. The exact epistemological status of phenomenal data in view of illata is not as obvious as in the preceding quotations, although I do as yet not claim that there is a definite contradiction. It seems to me that the general trend of the first formulation is that Feigl seeks to set up what is commonly called an empirical hypothesis (i.e., a hypothesis all entities of which can in principle be directly confirmed); whereas in the second formulation Feigl seeks to set up a theoretical hypothesis (i.e., a hypothesis of which only certain consequents can in fact be directly confirmed). I am, however, most anxious to let the reader formulate his own interpretation, and notwithstanding the cost of tiresome repetition, will again and again bring Feigl's contentions directly before his mind, and exactly as Feigl himself put them on paper.

Whether I am right or wrong in my interpretation of Feigl, I do wish to gain clarity on the two-fold nature of scientific method for my own purposes, since my own destructive and constructive theses are also claimed to be scientific. And what higher authority in the contemporary world of empiricism can I approvingly quote than A. J. Ayer's recent 'statement of the conditions which a hypothesis is required to satisfy, in order to be scientific' ('Philosophy', 538):

In modern times, two theses have held the field. According to one of them, what is required is that the hypothesis be verifiable: according to the other, that it be falsifiable. They operate very much in the same way, except that the requirement of falsifiability is rather more stringent. They differ in that the principle of verifiability was put forward as a criterion of cognitive meaning, whereas the principle of falsifiability was intended only to draw a line of demarcation: failure to satisfy it was taken to entail not that the sentence in question had no cognitive