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THE "MENTAL"  
AND THE "PHYSICAL"

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*The Essay and a Postscript*

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## *Postscript after Ten Years*

The foregoing essay was completed in February 1957, and published in the spring of 1958. During the last ten years, and especially during the last five or six years, I have received a veritable avalanche of extremely stimulating responses. Some of these are contained in books, others in essays and articles, and there have also been manuscripts, Ph.D. theses here at the University of Minnesota and elsewhere (some of them still unpublished at the moment), as well as a great many letters. I have kept, and still keep, trying to react to this "feedback" as fully as I can by way of correspondence. I have also had the benefit of critical discussions by philosophers and scientists on scores of occasions—lectures, symposia, colloquia, seminars, etc., both at the University of Minnesota and elsewhere in the United States, in Austria (1964), and in Australia (1965). Many of these new contributions toward a discussion of one or the other facet of the mind-body problem referred directly to one or several of my publications; others deal with the closely related but different views of J. J. C. Smart, or other philosophers or scientists. I am most grateful for all these—widely differing—responses. They ranged from almost complete agreement to incisive constructive as well as destructive criticism. In the brief remarks that follow, I shall be able to discuss only a limited number of these published or unpublished views and criticisms. I shall restrict myself to what appear to me the most important points. This, of course, involves the risk that I may overlook (but I hope not "suppress" or "repress") some essential criticisms. There are new approaches now in the making and in need of fuller development. With these I can deal only very sketchily, mainly because I have not been able fully to understand them, let alone to appraise them adequately and accurately.

In any case I feel somewhat vindicated in my view that the mind-

body problems cannot simply be made to disappear by purely linguistic maneuvers (60). The fashions of philosophy change, and it seems the mind-body problems are once again in the forefront of highly active and intelligent philosophical discussions.

To begin with, let me frankly state that despite all the extant contributions toward a solution or even only a precise clarification of the several puzzles that constitute the perplexities of mind-body problems, I am not aware of any solution that is completely successful. My own extensive essay\* written in 1957 now appears to me questionable in many points. I mentioned and discussed several of these vulnerable and problematic points quite candidly in section VI ("A Budget of Unresolved Problems. Suggestions for Further Analyses and Research").

As I see it now more clearly than before there are unresolved difficulties in each of the three main issues—be they scientific or conceptual-philosophical—of the cluster of mind-body problems: *sentience*, *sapience*, and *selfhood*. The sentience problem was most succinctly and elegantly formulated by Mrs. Judith Economos in a preliminary way at the very beginning of her doctoral dissertation (completed early in 1967 at the University of California at Los Angeles). With her kind permission I quote fairly fully (making only very slight stylistic changes):

. . . I shall first try to exhibit the existence of a perplexity, which I take to be the mind-body problem. This I shall do by listing four propositions which appear to be true but are difficult to reconcile with each other. Then I shall sketch various proposed solutions to the mind-body problem as elicited from the four propositions, and try to show that each proposed solution appears to conflict with one of the four propositions. . . .

#### Four Propositions

1. People have sensations, thoughts, etc., of which they are aware, but of which others are not aware except through the owners' reports or behavior; and these sensations, thoughts, etc. are not located in space, nor do they possess, produce, or consume energy or have mass.

2. There are in the world various objects, including contemporary human bodies, which are composed of elements which are located in space, which produce, possess, and consume energy and have mass; moreover the vocabulary of physical science seems sufficient to describe,

\* Designated most flatteringly by John Beloff (19) as the "Russell-Feigl Identity Theory," and characterized—also by Beloff (171)—very humorously as "whatever is the opposite of a nutshell"; I admit it was perhaps "a little long for its length"!

and the laws of physical science seem sufficient to explain, the behavior of such objects.

3. People's sensations, thoughts, etc., affect their bodily movements, and some events occurring to or in their bodies affect the people's sensations, thoughts, memories, etc.; and often when people's sensations, thoughts, etc., affect their bodily movements, this is because the people have so desired.

4. The concepts which we have of mental things or events on the one hand, and of material things or events on the other, are logically independent; that is to say, there is no demonstrable inconsistency in supposing a world in which there were material objects but no awareness, or conversely a world of awarenesses without anything in it fitting the description of matter.\*

At first glance it would appear that these incompatible four propositions force us willy-nilly into the agnostic position expressed so poignantly last century by the German physiologist E. Du Bois-Reymond in his famous phrase "*ignoramus et ignorabimus*"; but most philosophers remained undaunted by this "riddle of the universe" and have tried—in extremely diverse ways—to solve or to "dissolve" it. I have dealt briefly with the major forms of "dissolution": Radical Materialism; Physicalism (of various types); Logical Behaviorism; Neutral Monism; Phenomenalism; Oxford Linguistic Analysis; etc. As I have pointed out (60), despite the powerful impressions made upon me in my Vienna Circle years (1924–30), I no longer consider most mind-body puzzles as pseudoproblems engendered by conceptual confusions. I rather think—and have thought so at least for the last thirty-five years—that the relation of the mental to the physical presents us with a cluster of genuine and complex problems: some primarily scientific, others primarily philosophical. Perhaps I should mention immediately that I have come to think with increasing conviction that there is no sharp line of demarcation between (good) science and (clearheaded) philosophy. Every major scientific advance involves revisions of our conceptual frameworks; and doing philosophy in our day and age without regard to the problems and results of the sciences is—to put it mildly—intellectually unprofitable, if not irresponsible.

Once the pessimistic-agnostic position is abandoned, one faces the arduous task of working out a truly synoptic solution that is logically consistent. Consistency in these matters is painfully difficult to achieve

\* In her thesis, Mrs. Economos deals later on also, and I think in part extremely effectively, with the problems of sapience and especially of selfhood.

—as I know only too well from my own experience in groping for an all around satisfactory solution. In regard to the problem of sentience this is readily evident. Inasmuch as one wants to retain the essential contentions of physicalism and to repudiate epiphenomenalism (as is, for example, the basic tendency of J. J. C. Smart and other members of the “United Front of Sophisticated Australian Materialists” such as D. M. Armstrong, Brian Medlin, R. Routley), one embraces a “central state theory of mind.” This amounts to the claim that—“in principle”—a physical description of the world is *complete*, i.e., leaves out nothing. This, obviously, takes some doing; where or how are the apparently “homeless” qualities of immediate experience to be located? The first step is, of course, that taken by Bertrand Russell (as in *Human Knowledge*). The “homeless” qualities are “really in the mind”; and being mental they are features of cerebral processes. But what sort of features? In keeping with the best evidence of psycho-neurophysiology, they are very likely “global”—i.e., configurational, Gestalt-like features of the much more “finely grained” neural processes (and, a fortiori, of their “micro-micro”—i.e., atomic, subatomic, and quantal—constituents).

One challenging way of pointing up the issue is to ask whether the physicalistic account can really be “complete.” I had the privilege of discussing the problem (along with many more “tangible” matters in the philosophy of physics) with Albert Einstein one afternoon in April 1954 at his home in Princeton. I asked Einstein whether in an ideally perfect (of course utopian) four-dimensional, physical representation (à la Minkowski) of the universe the qualities of immediate experience (we called them metaphorically the “internal illumination” of the “knotty clusters of world lines” representing living-awake brains) were not left out. He replied in his characteristic, humorous manner (I translate from the German in which he used a rather uncouth word): “Why, if it weren’t for this ‘internal illumination’ [i.e., sentience] the world would be nothing but a pile of dirt!” This reply suggests that the (ultimate-utopian) physicalistic account, though complete in one way, is incomplete in another. But to put this in an enlightening and consistent manner is precisely the most thorny and important task for the identity theory.

I had hoped that my own double-knowledge, double-designation view would yield what is wanted. This view would retain the basically

empirical (synthetic) character of the mode of ascertaining the identity. Then, if the identity were assumed, the objectionable feature of epiphenomenalism would be eliminated. The arguments from the “causal efficacy” of pleasure, displeasure, attention, vigilance, desire, and volition, which the present-day Neo-cartesians\* keep using for interactionism, do not—I think—refute the identity theory. (I shall discuss the related arguments from intentionality and the unity of consciousness when I come to deal with sapience and selfhood.) The familiar use of interactionist statements in ordinary language, though logically delicate and hazardous, is not in principle objectionable. It is one and the same event, say a decision or volition, or a sudden pain, described phenomenally in one way, and physically in another way, which is a causal antecedent of a “bodily” response or movement; or, vice versa, some physical stimulus input causes a central state—described either in the familiar phenomenal language as a sensation, or in the (utopian) physical language as a feature of a cerebral process.

Now, the crucial issue is: Does my form of the identity hypothesis involve the assumption of “nomological danglers”? In many discussions my great and good friend Professor J. J. C. Smart attempted to show me that I don’t need the “danglers.” But I was recalcitrant in that I didn’t see how one could maintain the empirical (synthetic) character of the identification which Smart, in his own way, also stresses, and which must in some way reflect the correlations and isomorphisms that are gradually and increasingly discovered by psycho-(neuro)-physiology. Yet, right from the beginnings of my reflections on the traditional puzzle I was convinced that the “danglers” are metaphysically quite innocuous. Smart, I think, is essentially right in that they would not, and could not, appear in the “finished” scientific conception of the world. This can be made plausible by considering once again the piece of science fiction—the Martian Super-Scientist. Let us assume that a complete explanation of animal and human behavior can be achieved by reduction to the basic physical laws, and that the structures (initial and boundary conditions) of organisms can be described in purely physical<sub>2</sub> terms; then there is no need for the phenomenal terms—just as there would be no need for typically biological or physiologi-

\* Beloff, Ducasse, Shaffer, Popper, and Chisholm—in their various ways—renew on a more sophisticated level the old arguments of McDougall, Bergson, and Driesch.

cal concepts. They would all be "reduced" to whatever are the concepts of the "ultimate" physics (e.g., something like the concepts of current atomic, quantum, and field physics). The Martian's repertory—if he has a repertory of qualities of immediate experience at all (i.e., if he is not a "mere robot")—may not in any way overlap with that of us earthlings. In that case he would lack altogether any "acquaintance" with the qualities of our "raw feels." He would consequently also lack the sort of "empathy" that humans can have for each other. The physicalist would formulate this, of course, by pointing to essential differences between the Martian and the human central states and processes. The Martian would thus not know "what colors look like"; "what musical tones sound like"; "what joy, grief, elation or depression, etc., etc. feel like." Nevertheless he would be able to explain—and possibly also to predict—all of human behavior on the basis of his micro-theories. His theories may be expressed in a notation (reflecting concept formation) utterly different from our basic physics—but his physics would nevertheless be completely translatable into ours and vice versa.

Now, the question arises: Is there something about human beings that the Martian does not (and never could) "know"? This is merely the question of "completeness" over again, of course. I think Paul E. Meehl is correct in arguing (115) that the possession of a certain set of raw feels implies a cognitive advantage—in that a Martian (now of a different kind) would be in a position to explain and predict human behavior much more readily if his repertory of direct experience at least partially overlapped with ours. But I maintain that, given enough time and intelligence, the Martian with even a totally different repertory of raw feels would in principle (although much more cumbersome and slowly) arrive at a complete explanation of the behavior of the earthlings.

I am inclined to think that the basic philosophical issue lies elsewhere. I believe that those thinkers who maintain that a "category mistake" is involved in mixing phenomenal and physical language are essentially right. The only trouble is that we have thus far had no precise and convincing explication of the very notion of a category mistake (of this kind!). There are, of course, other sorts of category mistakes, e.g., the mistakes that arise out of a confusion of Russellian-type levels. I don't think that the theory of types is relevant here. The

initially suggestive ideas along these lines in R. Carnap's *Der Logische Aufbau der Welt* (1928, now available in English translation) or in G. Ryle's *The Concept of Mind* (1949) no longer seem adequate; the simple reason being that neither the phenomenalist (or neutral-monistic) reconstruction of the *Aufbau* nor the logical-linguistic behaviorism of Ryle is acceptable in the light of recent criticisms.

I, too, have to admit that the special formulation I presented in the long essay ten years ago must be revised. I did see that the sort of identification that seems legitimate and plausible (although also open to logico-methodological criticisms) in the natural sciences (e.g., temperature = mean kinetic energy of molecules; table salt = NaCl; Mendel's factors = genes containing DNA and RNA; and the like) can serve only if we conceive of psychology as a branch of biology, i.e., if we adopt the conceptual frame of intersubjective science. In that case such identifications as (short-term) memory trace = reverberating neural circuit, attention and vigilance = activation of the reticular formation in the brain, etc., etc. are logically and methodologically on a par with those mentioned before; or to give one more example, the identification of ferro-magnetism with a certain (statistical) distribution of the spin of electrons in the iron atoms.

Even this way of formulating the identifications has been called into doubt by Carnap and Feyerabend. These two philosophers of science, while perhaps allowing that "identification" is appropriate in its basic intent, maintain that it must really be regarded as an *explicandum*. The full and more accurate *explication* of it should be rendered in terms of *fusion* (Carnap, personal communication) or, similarly, as *replacement* or *supplantation* of concepts at earlier stages of scientific theories by concepts of a later, more accurate, and more comprehensive theory (67, 68, 69, 70). This is, however, not the place to enter into a detailed discussion of this important issue.

In any case, I now agree with Smart (and perhaps with Feyerabend) that within the conceptual frame of theoretical natural science genuinely phenomenal (raw feel) terms have no place. Although the following analogy is almost sure to mislead, I shall nevertheless use it as a "bridge" toward the denouement I am going to suggest a little later. My point is this: just as the commonsense (direct-realist) concepts of surface color, tone quality, flower fragrance, heat intensity, tangible hardness, etc. are supplanted by their "successor concepts" (a felicitous

term used by W. Sellars) in physical theory, such as frequency of electromagnetic waves, frequency, etc. of acoustical waves, chemical structure of "aromatic" compounds, molecular motion, atomic structure (of, for example, the diamond), etc.—so the phenomenal predicates used in the description of after-images, sensations, feelings, emotions, moods, etc. are to be replaced by the (as yet only sketchily known) neurophysiological and ultimately micro-physical characterizations.

But just as (good) science never "explains anything away" (except the "objects" of superstitions, illusions, or hallucinations), so the phenomena of the world of common experience (be they external, i.e., extradermal; or internal, i.e., intradermal; or "internal" in that other—tricky—sense of "mental") are *explained*, but not explained away. The "successor concepts" may be, and usually are, far removed from their "predecessors"; they don't have the warm familiarity, the colorful, "Christmas" pictorial and emotional appeals of the common-sense terms; but they have far greater explanatory power and coherence.

Wilfrid Sellars (155, 156) has offered a highly suggestive analysis along these lines by distinguishing the "manifest image" from the "scientific image" of the world. In keeping with what I have said in the long essay about the meaning of physical concepts, I would prefer to contrast the manifest image with the scientific *conception* of the world. More strongly than ever before, I am convinced that it is primarily the concept of the "physical" that requires reinterpretation and reconstruction. The imagery that is so helpful heuristically and didactically is not and cannot be part of the cognitive meaning of physical concepts and hypotheses. If we construe physical theories with the help of Ramsey sentences as Carnap proposes (32), then it becomes clear that our knowledge of the "physical world" is "purely structural." That is to say that the postulates of physical theories, including the correspondence rules, give us only an "implicit" definition of the theoretical concepts of the physical sciences. And since the concepts of biology and psychology (if physicalism is correct!) are reducible to those of physics, the same holds for the concepts of all behavioral sciences. Russell and Schlick were essentially right in saying that we have merely knowledge by ("structural") description of the "physical world." What then, by contrast, is "knowledge by acquaintance" as we have it "subjectively" and introspectively? Here I

still hold in essence the view formulated ten years ago: Since all knowledge is propositional, the propositions that formulate knowledge by acquaintance can do no more than reflect the *structure* of whatever is "given in immediate experience."

At this point once again arises the perplexity of the "ineffable" qualia of direct experience. Poincaré, Eddington, and other brilliant scientist-philosophers have made much of the distinction between the "inexpressible" and "uncommunicable" *contents* and the propositionally expressible and communicable *forms* or *structures* of the immediately given. As before, I believe this is a highly suggestive but nonetheless extremely misleading formulation. Schlick was aware of these dangers, but was not quite able to avoid them himself. I shall now try to explicate the distinction as well as I can. The first and perhaps most important point to notice is the essential difference between the concepts of the physical sciences and the concepts of introspective-phenomenological psychology. The concepts of physics may be said to be independent of, or invariant with respect to, their specific "anchoring" in the qualities or modalities of immediate experience. This can be illustrated by the case of congenitally blind persons who would "in principle" be able to arrive at the *same* theoretical physics, astronomy, chemistry, biology, and behavioral psychology as that achieved by persons blessed with eyesight. Given modern electronic devices (photoelectric cells, spectroscopes, transducers, amplifiers, radios, etc.) and enough time and intelligence the blind man could hear with his earphones or from a loudspeaker certain sounds that would lead him to essentially the same conception of the world that is embodied in our science textbooks. *Mutatis mutandis*, this same sort of philosophical "science fiction" could be spun out for a science on the basis of touch, smell, or heat sensations. As long as whatever exists and occurs in the world can in some way be causally connected by special devices with one or another of our sense modalities, and if the discrimination can be made sufficiently sensitive with the help of these devices, it does not matter which data of direct experience serve as the "observables" (in which the correspondence rules "anchor" the theoretical concepts of science). Hence, the "meaning" of physical concepts is invariant with respect to such "transformations" of the observation basis.

The "meaning" of purely phenomenal concepts, such as 'red', 'warm', 'sad', 'glad', by contrast, is quite different—I am inclined to

say it is even a different type of meaning (if not meaning of "meaning"). Within the confines of the purely subjective, introspective, phenomenal perspective, there is no such invariance with respect to modality transformations. This is what I meant by saying that purely phenomenal terms are "mere labels" of the qualities they designate. That we have acquired the labeling dispositions through the learning of language (in the way characterized by Carnap, Ryle, and Skinner) \* is admitted, but irrelevant to my philosophical point: once we have the labeling ability, there is one meaning, or rather type of meaning (or significance) of phenomenal terms that is radically different from that of physical concepts. Their designata are confined to the range of actual and possible data of direct experience and their immediately given qualities and relations. While the concepts of the (intersubjective) physical sciences, in order to have empirical significance, must of course be "anchored" (by correspondence rules) in the phenomenally given, their meaning is "structural" and non-intuitive in that it involves essentially ("implicit") specification by postulates.

The consequences of all these considerations for the identity theory, as far as I can see, are as follows: Inasmuch as a good and complete physicalistic (i.e., physical<sub>2</sub>) account of the world will contain "successor" concepts to all phenomenal concepts, there will indeed be no "nomological danglers" in such an account. Nothing important is omitted in such a description; but, of course, what counts as "important" are the spatio-temporal-causal features that are essential for the world's description, explanation, prediction, and retrodiction (as much as whatever degree of fundamental determinism or statistical regularity permits). Even the "anchoring in the data" is represented, but, of course, not in the sense in which traditional epistemology (including my own account above) is accustomed to put it. In the scientific conception of the world, theories of perception, of learning, and of language, ultimately formulated in physical<sub>2</sub> concepts, become the "successors" to the phenomenological-epistemological account. This is essentially what is tenable and defensible in modern physicalism (and Australian materialism).

For many years I opposed materialism, holding that it is illegitimate-

\* Emphasized in the oft-repeated Wittgensteinian arguments against the possibility of a purely private language. I still consider these arguments as invalid or confused (see 37, 45, 118, 175, 184).

ly reductionistic. That is why I attempted to replace it by my version of the identity theory. I felt that not only the radical behaviorists, but also the materialists somehow suppressed the "other perspective"; that they practiced what I called the "Hylas touch"—i.e., equipped with their particular sort of "blinkers" they turned whatever they touched into "matter" or physical events and processes. But the very possibility of giving a complete physical<sub>2</sub> account of the world is just that striking (and logically contingent but basic) feature of the universe and man's place in it that the advancing sciences make increasingly plausible. Nothing is "explained away"—everything is merely being encompassed by a comprehensive conceptual system, no matter how unfamiliar its pivotal concepts may be.

Once again we must ask: What precisely then happens to the familiar phenomenal features of the world as we know it in everyday life? And we answer—first sketchily and metaphorically: they are replaced, transformed, supplanted by the more rigorous, consistent, and explanatorily more coherent and fruitful features of the world as represented by physical<sub>2</sub> concepts. Much work still needs to be done toward a full analysis and clarification of this "great transformation." I realize that my own previous ("identity") account must also be thoroughly revised. As it stood ten years ago, it contained insuperable difficulties, particularly in view of the stringent demands of Leibniz's definition of identity in terms of indiscernibility. If I had been satisfied with merely *extensional* identity, I would have been saddled with an ontology of particulars (preferably of events) with *dual properties*. But that is hardly a step in the direction of the thoroughgoing monism I hoped to vindicate.

As I see it now, all purely phenomenal statements contain *egocentric universals* (i.e., words designating purely experiential qualia) and many such statements contain, in addition, also *egocentric particulars* (i.e., words like 'this', 'I', 'now', 'here', and/or cognate expressions). The contributions of N. Goodman, H. Reichenbach, B. Russell, Y. Bar-Hillel, W. Sellars, et al. to the analysis of 'egocentric', 'token-reflexive', or 'indexical' terms in their pragmatic contexts are important in this connection. Thus far it seems only the *egocentric particulars* have received the attention of logicians and language analysts. It has been shown that the very link of the intersubjective language with the experience of the "knowing subjects" who use that language is given

by the pragmatic context of their utterances. The uniqueness of reference of the indexical terms is explicated in the intersubjective frame of science by definite descriptions (unique characterizations) of the moment of utterance, the speaker who produces the utterance, or the place in which the utterance occurs (the word 'occurs' in the last sentence is to be understood in the sense of the "timeless present"). Let me explain this just a little more fully. In order to understand a sentence containing a temporal designation (a date in history for example), I have got to know where in time my "present" experience occurs. In order to understand, for example, geographical or astronomical place designations, I must know "where I am at" in space. (This is brought out humorously by the absurd story of the Boy Scout who on a long hike said to one of his companions: "According to this map we ought to be on that mountain over yonder!") Unless we can locate ourselves on (or in) the "map" of the Minkowski world, we would never understand any place or date designations. But in the intersubjective (Minkowski) representation, the 'here' becomes just one place among indefinitely many others; the 'I' one person (or organism) among others; the 'now' one moment among others. In this transformation ("democratization") the "existentially poignant uniqueness" of the NOW, the HERE, and the I are lost, because they are replaced by such definite descriptions as "the date on which H. Feigl got his Ph.D. degree"; "the place in which the tornado of 1965 did the damage"; "the person who was hit by a meteorite on December 12, 1954." "Uniqueness" in ordinary and scientific contexts simply amounts to a singularity that is logically contingent, but may be empirically demonstrable, or at least plausible. The "existentially poignant uniqueness" of the NOW, the HERE, and the I is a matter of immediate experience. The "successor terms" in the language of science are experientially neutral; they do not have the emotive (i.e., pictorial and emotional) appeal of the phenomenally given significance of the terms as understood, for example, in the "existential anguish" of a life situation, such as when I say to myself, "NOW is the moment to make my decision"; "HERE I shall build a house"; "I alone bear full responsibility for THIS action."

If tough-minded positivists fail (or refuse) to understand this "existentially poignant" uniqueness, there is little that I can do to help them. Only by some sort of arguments *ad hominem*, combined with ostensive procedures, can I convey what I mean. In any case, I

can reassure the positivists that I have not the slightest inclination to develop an existentialist metaphysics à la Heidegger. Nor do I subscribe to Wittgenstein's ineffability doctrine ("whereof we cannot speak, thereof we must be silent"—after all I have just spoken, and I hope intelligibly, about matters he thought one could at most "stammer" about).

A rigorous explication of the role of indexical terms should be provided in the semiotic (metalinguistic) discipline of pure pragmatics. But if this is going to be analogous to the explications of pure syntax and pure semantics, it will have to be formulated in an intersubjectively intelligible metalanguage; and hence again the "existential uniqueness" will be relegated to the limbo of emotive significance and supplanted by the neutral "sober and colorless" objective characterization.

Now, while I think that a world description (à la Minkowski) can be given that is—necessarily—devoid of indexical terms, such a world description can neither be fully understood nor practically used without being *linked*—with the help of indexical terms—to the experience of a sentient and sapient (i.e., human) being. This becomes evident if the Minkowski representation is viewed as a map of "all there is" in space-time. If I am to find the "picture" of myself-at-a-given-time on this map, I would have to scrutinize it in its (possibly) infinite extent in order to find just that particular skein (or segment of the set) of world lines which uniquely characterizes me-at-that-time. (If I had an exact double, this procedure would fail.) In actual practice I would, of course, *point* to that small region of the map. This is one way of illustrating the use of indexical terms—and of avoiding the paradox of the Boy Scouts.

It seems to me that what holds of indexical (or egocentric) particulars holds—*mutatis mutandis*—analogously of indexical (egocentric) universals. I cannot even begin to "get a public language going" unless I understand the private (egocentric) language whose predicates (monadic, dyadic, etc.) designate experiential qualities or relations. I must be able to know (by "acquaintance") some phenomenal qualities and relations (redness, between-ness, etc.) in order to "hook" (i.e., connect) my private language to the intersubjective language of science. To the extent that, for example, pointer readings belong to the confirming or disconfirming evidential data of physics, I must be able to "recognize" the position of a pointer on a scale "when I see it." In

my proposed reconstruction it is my private impressions, e.g., the shapes and colors in my visual field, which constitute "ultimate" data of observation. I realize that I shall meet here with a storm of opposition because all this will appear to be a restatement of the much-criticized doctrine of sense data. But although I definitely reject the phenomenalist reduction of physical-object statements to sense-data statements, I must say that I am not in the least impressed by the ordinary language arguments regarding the common use of such words as "observing", "seeing", "hearing". I would argue that these words are not always used as success words or achievement words even in ordinary language. If I close my eyes and press with my fingers on my eyelids I "see" kaleidoscopically changing patterns of colors; but I don't "see" (in the achievement sense) an external physical object. If I have the familiar experience of "ringing in my ears" (i.e., that kind of "hearing a sound"), this may well be no perception of a distant bell, but an experience engendered by intradermal events.

I trust it is clear that I am not for a moment endorsing any doctrine of phenomenism. I do not even wish to defend the notion of a full-fledged phenomenal language. I merely maintain that by giving ourselves a sort of "wrench" (away from the normal life perspective, probably somewhat similar to what Husserl meant by "bracketing out" all the usual and mostly automatic interpretations and/or inferences) we can arrive at the "given". I cannot see that the "given" in this sense is a myth; but I admit it usually is a "reduct" or "destruct" of a much fuller experience that involves a good deal of conceptual structure or "implicit knowledge". I also admit, and would even stress, that whatever we can say about the given qualia is "structural" at least in the sense that such "knowledge by acquaintance" involves much more than the *having* (i.e., undergoing, enjoying or suffering, living through) of an experience. The mere classification of the experientially given in regard to qualities and modalities requires at least the sort of conceptual structure that is constituted by the system of similarities and dissimilarities, and the degrees thereof, as, for example, represented by the topological ordering of (experiential) colors in the well-known color octahedron.

Some thirty-five years ago, i.e., in the heyday of positivism, I would have said that the meaning of purely phenomenal terms is emotive (pictorial, emotional) and non-cognitive. I would have said that this

type of significance is exclusively that of expression and evocation. I no longer hold this view. The ostensive link in the "anchoring" of all our empirical concepts very definitely fulfills a cognitive function. Moreover, far from being mere "barkings" (i.e., expressions such as "pain behavior" when crying 'ouch!') or "avowals" (in Ryle's sense), phenomenal descriptions of momentary direct experience do make truth claims, even if their truth is not establishable by "criteria" in the usual sense. They represent the extreme lower limit of cognition; they constitute, admittedly, a "degenerate" and "highly impoverished" sort of knowledge. Nevertheless, they are the "ultimate" basis of all our empirical knowledge claims. It is in this sense, and in this sense only, that I countenance a "methodologically solipsistic" (or "egocentric") reconstruction. The data of direct experience provide the ultimate confirming or disconfirming evidence of all our factual knowledge. Purely phenomenal assertions require no other evidence than that which is "given"; I would call them "self-evident" if this phrase had not been badly misused in traditional epistemology. Of course, as assertions (spoken, written—symbolized in any form, even if only "silently thought") I don't consider them infallible ("incorrigible"), for "there is many a slip between the brain and the lip." I even insist on their corrigibility in the wider context of intersubjective discourse and knowledge. Yet in this (solipsistic) reconstruction they are the least dubitable knowledge claims on which any more ambitious knowledge claims (of commonsense and of the factual sciences) are based—"in the last analysis"!

Moreover, if the sort of structuralism and physicalism discussed above holds, then—to express it first in the more familiar dualistic way—the configurational (Gestalt) features of immediate experience are isomorphic with certain global features of our brain processes. Hence, strange as it may sound at first, it is possible that by doing introspective-phenomenological description of immediate experience, we are in effect (though we are hardly ever aware of it) doing also a bit of (very crude, vague, and preliminary) brain physiology. This is my current reply to the "sticky" question: "How does an identity theorist explain the fact that he can worry about the place and role of the raw feels if they are to be identical with brain processes?" While I would no longer speak strictly of "identity" (for reasons discussed above), my answer would simply be that the scientifically uninformed person,

when giving phenomenological descriptions, does not know that he is at the same time describing certain features of his brain processes. This is to be viewed as a case of what Quine calls "referential opacity." It is in some respects analogous to, for example, the case of the housewife who by saying "the soup is hot now" does not know that she is referring to a state of the soup which (in the light of the modern theory of heat) is characterized also by the mean kinetic energy of the molecules that are the constituents of the soup. In all these cases there is certainly at least identity of *reference* (extension); and there is also identity of some (but not all) *structural* properties (intension). The intensional identity concerns the isomorphism (sameness of structure) of certain global, i.e., statistical and/or Gestalt, features of the micro-states with the more directly observable features of the macro-states.

As is fairly generally agreed, the purely epistemic features ("known", "unknown", "believed", "not-believed", "doubted", etc.) are "intensional" in the narrower sense, in that the *salva veritate*, let alone the *salva necessitate*, condition for substitutions is not required for the usual nomological or systemic (theoretical) and in that sense intensional identities.

I still agree, of course, with Wilfrid Sellars (154), Roderick Chisholm (36), Stephan Körner (100), and others, in considering clearly *intentional* (in Brentano's sense) features as irreducible to a physicalistic description. But as I have briefly indicated in the long essay, this does not seem to me a serious flaw in physicalism. According to Sellars' decisive analysis, this irreducibility is on a par with (if not a special case of) the irreducibility of logical categories to psychological or physiological ones. Logical categories, and principles formulated in terms of them, are indeed "categorially" different from those of the factual sciences. Logic (syntax and semantics) is, of course, indispensable in the object language or the metalanguage of all sciences (formal or factual); but the difference between logic and psychology is just as fundamental as that between, say, logic and physics. To disregard the difference amounts to making one of the most glaring category mistakes. This sort of category mistake is fundamentally different from (a) violations of Russell's type rule; (b) confusions of language levels, e.g., object language and metalanguage; (c) mixing of phenomenal with strictly physical concepts; (d) confusion of dispositions (ca-

pacities, propensities) with occurrences (episodes, events, processes); (e) mistaking purely emotive (i.e., pictorial, emotional, and/or motive) expressions and appeals for cognitively meaningful sentences. The "naturalistic fallacy" (i.e., the alleged inference from 'is' to 'ought') is an important example of this categorial confusion. (So here we have then at least six radically diverse kinds of category mistakes; perhaps there are still many others! ?)

The foregoing notwithstanding, some important qualifications are in order. As Paul Meehl\* has shown quite cogently, certain logical categories are indispensable in the *molar*-psychological accounts of linguistic (generally, of symbolic) behavior. Consider, for example, the recognition of a piece of reasoning as a fallacy of four terms (*quaternio terminorum*). It is impossible to give a purely physicalistic characterization of the conceivably unlimited varieties of stimulus patterns that would form the class of this kind of fallacy. The stimulus objects might be visual (as in writing or print); they might consist of spoken sounds, of Morse code clicks; of smoke signals, of the gestures of deaf-mute persons; etc., etc. Hence in a *molar*-psychological account, the defining characteristic of the many and varied stimulus patterns that might elicit the response "fallacy of four terms" can be given only in terms of *logical* categories. But, of course, if we had the ideal (utopian) neurophysiological, or ultimately microphysical, description of the cerebral processes that occur in the behavior, for example, of a logic teacher, the precise response would become predictable (at least to the extent and to whatever degree determinism holds in this domain) on the basis of a purely physical description of all the details of the stimulus input, cerebral transaction, and response output; hence the logical categories would then not be required for a characterization of the stimulus classes. But of course the ultimate physical processes would be quite "opaque" to one who could not provide such a classification. This would be analogous to, let us say, a prediction of the configuration of musical notes put on paper by a composer whose "output" is predicted merely in physicalistic terms and would thus be unintelligible to someone not familiar with the rules of musical notation.

These qualifications should, however, not be misunderstood. Whatever occurs in the "mind" of a logician, mathematician, inventor, com-

\* In essays to be published in due course, one in the forthcoming Vol. IV of the *Minnesota Studies in the Philosophy of Science*.

poser, etc. is of the nature of a process, and hence—if physicalism holds—would be describable and explainable in terms of micro-concepts and laws. For the molar psychologist it is again essential to utilize the concept of rule-governed behavior. This has happily come to the forefront of the investigations pursued by the psycholinguists (Chomsky, Fodor, Katz, *et al.*). Obviously, first-level rule-conforming behavior must be distinguished from such second-level rule-governed behavior that amounts to an articulate statement of the rules. The ordinary processes of deductive inferences, for example, may well go on without an explicit awareness of the rules to which they conform (just as one may play a simple game “correctly” and yet not be able to formulate its rules explicitly). All this belongs in the domain of the psychology of learning, motivation, symbolic behavior, and the like.

In any case, the problems of intentionality, and hence the relations of the logical to the psychological (or physiological, computerological, “robotological”) are fundamentally different from the enigma of the relations of sentience to the physical processes. Some philosophers feel that the central issue of the mind-body problems is that of intentionality (sapience); others see it in the problem of sentience; and still others in the puzzles of selfhood. Although I have focused my attention primarily on the sentience problem, I regard the others as equally important. But I must confess that, as before, the sapience and selfhood issues have always vexed me less severely than those of sentience.

Returning, then, to the sentience problem, there are some aspects even of intentionality and of selfhood which may well require phenomenological description. By a sort of “lateral” view of the act-object relation—as we take it by introspection of perceiving, thinking, desiring, willing, etc.—we may say that we are “aware” of the intentionality or “aboutness” of such states of consciousness. But just as *inference* (in contradistinction to deducibility or entailment) is a psychological process, so the awareness of intentionality is a mental episode; and, again, if physicalism holds, some equivalent or “successor” account will eventually be given of these processes or episodes in physical<sub>2</sub> terms. Just what specifically such accounts will be remains to be settled by the future findings of neurophysiology. Similarly, what have been called the “conceptual” relations—such as those of the qualities to one another in the topological phenomenology of degrees of similarity or dissimilarity—must have their counterparts in certain features of brain

processes by which we achieve the discriminatory judgments that are finally expressible in verbal or other types of responses. But we must not confuse that topological order with the causal order in which a given sensory episode occurs. Some sort of isomorphism is bound to prevail for each of these, i.e., between the phenomenal and certain features of the physical processes, but there will be striking differences between the two types of order.

Analogously, the much-discussed problems of the “nature of a person”, of the “unity of consciousness”, of the “identity of the self”, and perhaps also of Kant’s “synthetic unity of apperception” cannot be solved on a purely phenomenological basis. The phenomenal data in this domain, e.g., those having to do with the continuity of memory, or the ever (really only often) present possibility of connecting our current experience with earlier experiences (and the expectation of later ones) can be explained only by embedding them—as formulated in their respective successor concepts—within their neurophysiological setting. The psychiatric cases of dual or multiple personality may well be plausibly accounted for in terms of the alternating dominance of subsystems within the total set of brain processes.

There is one group of extremely difficult philosophical issues in which I have reached no more than highly tentative conclusions. A conceptual clarification is urgently needed regarding the differences (if any) between various types of phenomenological descriptions, and perhaps also between phenomenology generally and introspective psychology. E. Husserl and many of his disciples have focused their primary attention on the pure intuition of “essences” and their (allegedly “a priori”) relations. It seems to me that the results of phenomenological intuition (*Wesensschau*) and those of the ordinary language analysis (Wittgenstein, Austin, and their disciples, despite their rather diverse claims and emphases) coincide to a remarkable degree. What the phenomenologists consider as “a priori necessary and synthetic” propositions finds its counterpart (if not equivalent) in the “conceptual necessities” uncovered by the linguistic analysts. If, for example, the “logical” incompatibility of “determinates” (e.g., red and green) under one “determinable” (color) is “intuited” phenomenologically as an “internal” relation of qualia, the same situation is described by the Wittgensteinians as part of the “grammar” of color words. Al-

though I reserve some doubts on either account,\* it must first of all be recognized that this sort of “synthetic a priori” is “puny” and insignificant compared with the “grandiose” a priori of the rationalists and of Kant (in regard to space, time, and causality). Whether the minor (“puny”) a priori should be explicated (reconstructed or construed) in terms of syntactical formation rules or in terms of “A-postulates” (meaning rules à la Carnap or Maxwell) is irrelevant in the present context. I surmise that the phenomenologically intuited incompatibilities (or necessities) may well be basic *psychological* limitations (or constraints) on imaginability or even conceivability, and, if so, they may well be neurophysiologically explainable (ultimately!).

Introspective psychology seems to me to produce statements of a logically mixed character. If I introspect my current mental states—be they sensations, emotions, moods, intentions, desires, volitions—and report about them (as in a psychoanalytic interview), the egocentric particulars (at least “I” and “now”) are almost always part of my utterances. But if I state a psychological regularity that is introspectively ascertained (e.g., great excitement always subsides after some time), then I disregard (abstract from) my own case and offer a generalization. This seems different indeed from the results of phenomenological intuition regarding the “internal” relations of “essences.” To the extent that the customary introspective psychology formulates its knowledge claims in the frame of the “manifest image,” i.e., the commonsense view, of the world, it uses a combination of subjective-phenomenal with intersubjective-scientific (spatio-temporal-causal) concepts.

Now, as is generally admitted, the manifest image—useful as it is in everyday life—is logically unstable, in that it contains implicit inconsistencies, and in that it is severely limited in its explanatory (and predictive) power. Behaviorism was and still is one remarkably successful way of securing consistency as well as explanatory and predictive power. I am here, of course, referring to *methodological* behaviorism (in contradistinction to logical or radical behaviorism which either denies or declares as meaningless purely mentalistic assertions). Relying on my foregoing remarks, I would say that as soon as the *peripher-*

\* Consider, for example, *sweet and sour* as determinates under the determinable *taste quality*. These are clearly combinable and hence compatible, as is demonstrated by the taste of lemonade, or of sweet pickles!

*alistic* type of behaviorism (as, for example, in the outstanding work and basic orientation of B. F. Skinner) is supplemented by theories about the *central* states and processes within the organism, and especially in its nervous system, it is on its way to the kind of physicalism which forms the frame-hypothesis of the present philosophical analysis. What happens in this “great transformation” is the replacing of most (or all) concepts of the solipsistic (egocentric) perspective as well as of the manifest image (still suffused with subjectivistic features) by a completely intersubjective account. This has been seen, but expressed far too obscurely, even by the existentialists (e.g., Martin Buber), when they speak of the shift from the “I-Thou perspective” to the “It perspective” of impersonal, objective cognition. I have already discussed the “successor” concepts of the egocentric particulars; but along with them the radical objectification applies also to the experienced passage (“flow” or “flux”) of time; the difference between past, present, and future; the “purposive” description of human action; the “intervention” (Collingwood) notion of cause; the value-impregnated notions of moral responsibility, freewill, and the “self.” But again, nothing is “explained away”—all these features are merely subjected to a redescription in a thoroughly “detached” objective framework. The clamor about the “cleavage in our culture” between the sciences and the humanities may well be understood in terms of the shift in “perspective.” There are not two different sorts of reality, but there are two ways of providing a conceptual frame for its description. In fact, at least so it seems to me, there are a great many “perspectives” or frames—the extremes being the purely egocentric as the “lower limit” and the completely physical<sub>2</sub> account as the “upper limit.” In between are the many halfway (or part-way) houses of the possible manifest images. It is a good exercise for analytic philosophers to make explicit, in special reconstructions, the conceptual frame of each of these “perspectives.”

While I should prefer not to irritate my tough-minded readers by waxing “metaphysical,” I am tempted to say that the egocentric account, with its direct “labeling” of the qualities of experience, confronts *Being* (shudders?) as immediately as is possible in this world of ours, whereas all scientific accounts, owing to their quality-modality-invariance, deal with Being only indirectly and structurally.

The mistake criticized by the brilliant positivist (“empirio-criti-

cist") R. Avenarius as an illegitimate "introjection"\* of subjective experience into another person's body (head, brain) can easily be avoided if we adopt either the radically egocentric or the completely physicalistic account. The halfway houses of the manifest images inevitably lead to inconsistencies (or at least paradoxes, aporias) engendered by category mistakes. Of course, I agree that in the world of everyday life (is this really the *Lebenswelt* of the phenomenologists?) we understand each other quite well, even though the language of the "manifest image" is, strictly speaking, inconsistent. For the purposes of common communication the "introjection" is harmless. I suspect that even slightly sophisticated commonsense persons do not literally introject raw feels into the other fellow's brain. He would never expect to find images, sensations, emotions, and moods literally in the brain (not even in his own—if he were to examine it autocerebroscopically). In the manifest conception the brain is simply the "bloody mess" of neural tissue that one would come to see when opening a man's cranium. The region of (phenomenal) space in which the brain-as-seen appears is already occupied by the grayish-red stuff. (Leibniz was already quite clear about this.) Hence, even the "man-in-the-street," if he is not completely stupid, will understand the ascription of raw feels to other persons in the sense of the counterfactual (really counter-identical) proposition: "If I were the other fellow, and if I were in his particular momentary situation, I would have such and such experiences." Thus even commonsense is able to avoid (in this way) the paradoxes of introjection. This holds equally for one's own case in that in the autocerebroscopic situation one would have simultaneously some musical experiences, for example, along with some visual experiences which would furnish the confirming data for assertions about one's own cerebral processes.

It has been tempting to several thinkers to view the categorial incompatibility of the phenomenal and the physical language as a sort of "complementarity" analogous to the one of the Copenhagen interpretation of Quantum Mechanics. I think the analogy, though suggestive, is rather weak. Aside from the question of the tenability of the complementarity doctrine even in theoretical physics, I think that

\*The reader should not confuse the meaning of this term with what Freud meant by "introjection"; Freud's concept refers to the incorporating of, for example, the father image, in our superego.

the mutual exclusiveness of the phenomenal and physical conceptual frames is to be explicated by the *logic* (semiotic) of the respective categories—and not as a formulation of a feature of the world. Correspondence rules connecting physical with phenomenal terms, however, are "crosscategorical" (see Cornman, 46, 48). They should be formulated in a semiotic (semantic-pragmatic) metalanguage.

My tentative conclusion is, as may be evident by now, that "introjection" rests on the category mistake of mixing purely egocentric language with objective (intersubjective) language. The basic difference, let me repeat, is that between direct labeling and indirect description (based on the nomological net provided by a theory). Nevertheless the ascription of raw feels to other persons is achieved in the scientific language by the ascription in terms of successor concepts of a specific "structure" in the conceptual network of physical<sub>2</sub> science to a certain region (of physical<sub>2</sub>) space-time. Whatever seems to be missing is provided by the above-mentioned counterfactuals (or counter-identicals), and their own peculiar emotive significance.

The pictorial-emotional significance that provides a peculiar "root flavor" for the concepts of the physical sciences is, as I have tried to show, cognitively irrelevant—important though it may be heuristically and didactically. But the meaning of subjective-phenomenal concepts (in the egocentric perspective) definitely involves their "root flavor." It does not matter that this turns out to be completely trivial when formulated semantically (e.g., "'red' designates red"; "'warm' designates warm"; etc., etc.). These are the "language entry rules" in Wilfrid Sellars' formulation. It should be noted that I said that the meaning of purely phenomenal terms "involves" their "root flavor"; I did not say that it specifies their meaning completely even in the phenomenal language. Equally important is the logical locus of phenomenal terms in the structure of cognate terms, representing the place of a given quale among more or less similar qualia within the respective modality, and the place of one modality among the others.

One of the most important tasks yet to be done that will lead toward a more complete solution of the sentience problems is a precise logical analysis of the relation of the various phenomenal "spaces" (visual, tactual, kinesthetic, auditory, etc.) to physical space. Here the by now classical suggestions contained in the work of Schlick, Köhler, Russell, and Ruyer may well provide a useful starting point. Norbert Bischof

(20) seems to me to have contributed, quite recently, most fruitfully to this endeavor.

Another important task (only adumbrated above) concerns the exact syntactical, semantical, and pragmatic characterization of the (or a) phenomenal language. I have not been able to come up with anything better than the solipsistic reconstruction in terms of an event ontology in which phenomenal predicates (elementaristic or configurational, as the case may be) are ascribed to moments ("specious presents") of phenomenal time. Although I am by no means sure, I am inclined to think that this sort of (artificial) reconstruction might allow for a purely subjective language; all genuinely intersubjective or physical concepts would be kept out of it. But data as described in such a phenomenal language would provide the "ultimate" testing ground for all intersubjective propositions. (Of course this will require some sort of correspondence rules.)

At the risk of misleading the reader by a very weak and distant analogy, I suggest that the relation of the egocentric to the intersubjective account of the world may be compared with the relation of a geocentric to a heliocentric account of the kinematics of the planetary system. Just as the looplike or retrograde motions of the geocentric description disappear once the "Copernican turn" has been accomplished, so the directly given qualities and the "privileged" egocentric terms disappear in the intersubjective account of the physicalistic conception. And just as it is otiose (if not preposterous) to ask "Where are the epicycles in the heliocentric\* description?" so the question "Where are the experienced subjective qualities in the scientific description of the world?" is equally inappropriate. These phenomenal qualities are described, but in a thoroughly different way, in the "transformed" account of intersubjective science. I think a basically similar approach will resolve the problems arising from the currently fashionable emphasis on the difference between "actions" and "movements." Actions as conceived intensionally (because of their "intentionality") belong to the manifest image of the world (suffused with egocentric

\*I refer here not to the historical stages of the Ptolemaic and Copernican systems, but to a modern kinematic description of the geocentric, and heliocentric types, both brought up to date as regards the precise distances, orientation, etc. of the sun and the planets. (These are two systems, of course, logically equivalent, differing only in formal simplicity. But there is, by contrast, no L-equivalence between the egocentric and the physicalistic descriptions.)

significance). They are represented in a radically transformed manner—indeed as "movements"—or if this term is burdened with a pejorative connotation, as "processes" occurring in the interaction of organisms with one another and with their environment, all conceived ultimately in terms of physical<sub>2</sub> concepts. Fortunately the most promising endeavors in current theoretical psychology pay no attention to the "ordinary language philosophies of mind." While I grant that intuitive, empathetic, introspective, and phenomenological approaches are heuristically valuable, I doubt that they can contribute more than a technique of arriving at hypotheses which then still have to be tested (confirmed or disconfirmed) by the usual methods of intersubjective science. The ordinary language approach, though often phenomenologically perceptive, is fraught with the dangers of a regression to the sort of commonsense psychology which is contained in the "intuitive psychological understanding" that any person of some experience possesses anyway. This is the "psychology" used quite effectively in the practical affairs of diplomats, ministers, politicians, businessmen, parents, nursemaids, and fishwives. There are few surprises, and hardly anything that could be incorporated in, for example, the theory of motivation.

Looking back to the antimetaphysics of the logical positivists (or even to Popper's demarcation of scientific from metaphysical propositions) I now feel it does not matter much (except in "philosophical politics") whether such problems as those of the "reality of the external world," of "other minds," or of the "inverted spectrum" are regarded as metaphysical or as scientific. Carnap, I think with some plausibility, branded them (in the formulation in which he presented them) as pseudoproblems; but Popper regards them as meaningful but metaphysical questions. The sort of reasoning that conceives of, and argues for, mental states in other persons is, I have always admitted, an extreme and degenerate form of analogical reasoning. It depends on what one makes of those basic counterfactuals. I consider them as perfectly meaningful because their counterfactuality hinges upon certain fundamental natural limitations of direct testability. But once these limitations (the egocentric, the present moment predicament, etc.) are seen to be basic features of our universe—as indeed they appear in the best scientific and epistemological accounts—then perhaps the assorted aporias of philosophy and the "paradoxes" of existence will

lose their traditional air of mystery, and a more enlightened philosophy will finally relieve us of those perennial perplexities.\*

I realize only too painfully that the observations set down in this postscript are too sketchy and impressionistic to do more than, at best, provide suggestions for further, very much needed work in philosophical analysis. Short of writing a book (which I am not likely to do soon if ever) on *Mind and Its Place in Nature*,† I felt that it was better to present my current ideas on the occasion of the republication of my long essay of ten years ago than to remain silent. It is to my readers that I appeal for further concern with the mind-body perplexities, and for a charitable reception of my—possibly quite quixotic—ideas. In any case, it should be remembered that my entire discussion is predicated upon the scientific acceptability of (physical<sub>2</sub>) physicalism. If future scientific research should lead to the adoption of one or another form of emergentism (or—*horribile dictu!*—dualistic interactionism), then most of my reflections will be reduced to the status of a logical (I hope not illogical!) exercise within the frame of an untenable presupposition. But since I now regard philosophical analysis as continuous with scientific research, I can only plead that we be permitted the procedure of trial and error, and of successive approximation in the predominantly philosophical endeavors just as we consider it entirely appropriate in the predominantly empirical but endless quest of scientific research.

\* Keith Gunderson, in a forthcoming essay (78), has dealt with the vexatious predicaments both of “privileged access” and of “barred access” in a brilliant and highly original manner. I think he has succeeded in giving the most adequate intersubjective account of the puzzling asymmetries connected with subjectivity.

† The two remarkable books with this title, by C. D. Broad and Durant Drake, respectively, appeared in 1925! So, perhaps someone should try, on the current level of analytic sophistication, to bring the analysis scientifically and philosophically up to date.

## Selected New References

Having given a much-appreciated, ample bibliography in the earlier essay, I present again a long list of items that I have found interesting, relevant, and controversial. However, the “book and article explosion” since 1957 is quantitatively so overwhelming that even this long list is unavoidably incomplete. I hope that I have not overlooked some genuinely important publications.

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#### LATE ADDENDA

The following essays and articles (except the first two on the list) are forthcoming. They present a bold and new approach of realistic structuralism. I expect that this reconstruction—though in important points differing from my own—may yet offer the most illuminating solution of the sentence issue of the mind-body problems.

201. Maxwell, Grover. "The Ontological Status of Theoretical Entities," in H.

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