

ERNST MACH AND THE ELIMINATION OF SUBJECTIVITY

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1. The neutrality of the given

...one of the greatest advantages and attractions of true positivism seems to me to be the antisolipsistic attitude which characterizes it from the very beginning...perhaps the philosophy of Mach and Avenarius [is] one of the most consistent attempts to avoid [solipsism]...

...primitive experience is absolutely neutral...To see that primitive experience is not first-person experience seems to me to be one of the most important steps which philosophy must take towards the clarification of its deepest problems.

These quotations - from Schlick's late article "Meaning and Verification" (1936) - illustrate the constant positivist desire to eliminate the subject, to transcend subjectivity.¹ This ostensibly anti-solipsistic "neutralism" was, as Schlick records, expressed earlier in the "neutral monist" philosophy of his predecessor as Professor of the History and Philosophy of the Inductive Sciences at Vienna, Ernst Mach. The present article is the first of two, concerned to explain the development and influence of this aspect of positivist "neutralism" from Mach to the Vienna Circle.

"Neutral monism" has the unexciting sound of a long-forgotten doctrine, redolent of the casuistry of dusty old volumes. It is however probably the most economical label for the influential standpoint presented by Mach in *The Analysis of Sensations* - a strangely potent doctrine in the fin de siècle philosophical milieu. Neutral monism expresses what Schlick termed the "immanence standpoint". That is, it equates the real with what is "given" in experience - "a realm standing above all doubt".² But the given, though not yet considered mythical, was not to be construed as given to someone. "Experience" was essentially subjectless. In marked contrast to earlier positivists such as Comte, Helmholtz and Spencer, Mach and his followers were united by a hostility to representative realism and the veil of perception, and sought to eliminate both the subject to whom perceptions were given and the things-in-themselves that were the unperceived causes of those perceptions.

Neutral monism was advocated by a number of Mach's contemporaries, of whom the most notable was Richard Avenarius. With its desire for a wholly pre-theoretical point of departure in philosophy, a subjectless "given" with minimal additions on the part of "thought", the doctrine contributed to a new, "critical" trend in German positivism.³ It became a constant theme in the work of positivists up to the time of the Vienna Circle; it was also adopted by figures of different traditions such as William James and, for a time, Bertrand Russell.⁴ Mach anticipated the non-sceptical solipsism of Schlick, Carnap and Wittgenstein. Complementary to this, he advocated a precursor of 20th-century linguistic phenomenalism, influencing inter alia the conventionalist constructionalism of Carnap's *Aufbau*. His neutral monism initiated an unstable transitional phase in the history of empiricism. Taking the subjectless "given" as a starting-point in philosophy is, historically, mid-way between starting with a subjective "given" (the empiricist assumption until the later 19th century), and not starting with a "given" at all (empiricism self-destructs in post-Quinean naturalism).⁵ This "neutralist" standpoint was to receive its most sophisticated expression in the work of the Vienna Circle.

2. Mach's atomism

Ernst Mach is the Douanier Rousseau of modern philosophy. He exercised a remarkable philosophical

influence in the Viennese milieu, one which is surprising since he was primarily a scientist, a self-confessed philosophical ingenu whose important writings in the central areas of the subject were naive and inextensive.⁶ His repertoire of themes was limited and tended to repetition. One of the most prominent is captured in the following quotation from *The Science of Mechanics* (1883):⁷

Nature is composed of sensations as its elements...Sensations are not signs of things; but on the contrary, a thing is a thought-symbol for a compound sensation of relative fixedness. Properly speaking the world is not composed of 'things'...but of colors, tones, pressures, spaces, times, in short what we ordinarily call individual sensations.

This is Mach's theme-song, which he rendered in different contexts and with the citation of different authorities throughout his subsequent career. He elaborated it later in his delightful, idiosyncratic work *The Analysis of Sensations* (several editions from 1886 onwards).⁸ There, he argued that what we take to be visible, audible, tangible properties of bodies and egos are in fact varyingly evanescent elements or sensations; bodies and egos are pseudo-unities consisting of complexes of these elements. The ego is a "complex" of memories, moods, and feelings, joined to a particular body (the human body of which a certain view is obtained). Spaces and times are sensations as much as colours and sounds are.

It is the economy of thought, Mach argues, that causes us to go beyond the elements and complexes. Talk of "bodies" or "objects" results from a "partly instinctive, partly voluntary and conscious economy of mental presentation", since the permanency of complexes is more noticeable and important to us than their changeableness (AS p. 3). "Thought-economy" is central to Mach's philosophy of science. It was the Darwinian legacy to critical positivism, and marks an important break with Kantianism in German philosophy. The order science imposes on experience is a biological process of adaptation, a product of our own needs and convenience rather than of anything intrinsic to nature; the scientific realism which Helmholtz and the earlier positivists took for granted is mistaken. The aim of science is to provide the most complete, precise and economical description of observable facts; abstraction, whether in the postulation of laws, theories or bodies, is justified only insofar as it supports this positivist objective. "The economical office of science...fills its whole life", Mach writes.⁹ Talk of bodies and objects is often inappropriate for the purposes of scientific investigation, where knowledge is an end in itself and for which everyday thought-economy does not suffice.¹⁰

The useful habit of regarding complexes as unities generates the notion "at first impressive, but subsequently recognized as monstrous, of a 'thing-in-itself', different from its 'appearance', and unknowable" (AS p. 6). The pernicious notion of the thing-in-itself as genuinely permanent entity is the particular focus of Mach's hostility. His desire to avoid the "pseudo-philosophical problem" to which it gives rise generates much of the motivation for his neutral monism.¹¹ Mach's standpoint is atomistic and neutralist; the atoms are neither mental nor physical, subjective nor objective, but "neutral". In his vocabulary, however, "atomism" was a term of abuse. Mach was a leading opponent of atomic and molecular theories in physics, since atoms are "beyond the reach of our senses".¹² Attempts at the mutual adaptation of physics and psychology have resulted in various futile "atomistic and monadistic" theories. What is required for developing psycho-physical investigation is a different kind of atomic basis - the elements or sensations (AS p. 32). Mach's early version of the "unity of science" therefore, as one would expect, took a less sophisticated form from its later Viennese manifestations.¹³

"Atomism" is a term with a long history in the empiricist tradition; it is prominent in associationist psychology and in early positivism.¹⁴ But it is easier to trace the continuity in the use of the term than to understand what it signifies. "Atomism" is often contrasted with "holism". "Atomism", when so contrasted, expresses the idea that each atom or element is ontologically self-subsistent; "holism", that elements are ontologically inter-dependent. Mach's opposition to genuinely persisting objects can be construed as anti-holistic in this sense; but the wider implications of the atomist-holist debate that

featured in the work of his neo-Hegelian contemporaries did not interest him. Mach's atomism consists (i) in his opposition to, not to say paranoia about, entities construed as things-in-themselves as opposed to mere complexes of sensations; and (ii) in his rejection of the idea that the sensations possess any internal relation to a subject. This second aspect, however, is better treated under the next heading.¹⁵

3. Mach's monism

What neutral monism adds to atomism is the claim that the atoms or elements are of a single, neutral kind. The title "neutral monism" implies a rejection of two principal dualisms: mental-physical and subject-object. There is a less explicit rejection of a third also: appearance-reality. These anti-dualistic attitudes go together, as I will show. "Neutral" implies that this is not a reductive or eliminative monism: either of the mental to the physical (materialism) or the physical to the mental (Berkeleyan or subjective idealism).

Mach's neutral monism is made up of two logically independent constructions: the atomistic construction of enduring things from evanescent elements, and the neutral monist construction of objects and subjects, or mental and physical things, from the one kind of neutral element. (Non-neutral atomism and non-atomistic neutralism are also logical possibilities.) The latter construction is presented by Russell in "The Nature of Acquaintance" - at a time (1914) when he didn't yet advocate neutral monism himself. He wrote:

"Neutral monism" - as opposed to idealistic monism and materialistic monism - is the theory that the things commonly regarded as mental and the things commonly regarded as physical do not differ in respect of any intrinsic property possessed by the one set and not by the other, but differ only in respect of arrangement and context...Two objects may be connected in the mental world by the association of ideas, and in the physical world by the law of gravitation.

The picture allows that one and the same element is "physical" or "mental" depending on whether it is taken to be part of a physical or a mental series - a proposal which William James also advocated.¹⁶ For instance, a content as of a room can be a member of a mental series of perceptions that constitutes A. Hamilton, yet at the same time a member of a physical series that is constituted by the history of the room. ("Content as of a room" begs some questions of course - these will be discussed below.)

Mach has a similar if less sophisticated picture. The various complexes of elements are introduced by the following shorthand. Those constituting a physical body are denoted by "ABC..."; the body of a subject, "KLM..."; and the ego, " ...". These expressions do not denote different sorts of element, just different orderings of the one sort of element. The complexes, Mach claims, are "functionally dependent" on each other:

...it is only in the connexion and relation in question, only in their functional dependence [on KLM], that the elements [ABC] are sensations. In another functional relation they are at the same time physical objects (AS p. 16).

For instance, the green of a leaf is a physical element in its dependence on other properties of the leaf and its environment, and a psychological element in its dependence on my perceptual processes (which Mach confusingly construes as brain-processes). Which it is taken to be depends simply on one's direction of interest - whether it is the interest of the physicist, or that of the psychologist (AS pp. 43-44, 61-62). The physicist will profess a concern with physical objects alone; to the psychologist, sensations are the primary data. But there is no conflict, according to Mach, since "the elements ABC [constituting a

physical body] are immediately and indubitably given" (AS p. 63).¹⁷

Mach exploits the fact that appearances of objects are "conditioned" by states of the subject (situation, state of perceptual organs, etc.):

A magnet in a neighbourhood disturbs the particles of iron near it; a falling boulder shakes the earth; but the severing of a nerve sets in motion the whole system of elements...[This] suggests the picture of a viscous mass [of sensations], at certain places (as in the ego) more firmly coherent than in others (AS p. 17).

As I will argue, remarks such as "the severing of a nerve sets in motion the whole system of elements" are very solipsistic. The ego, then, is simply a more coherent mass of sensations. Mach agrees with Lichtenberg that the postulation of the ego is a "mere practical necessity" (AS p. 29). He therefore rejects the following:

(1) The idea of a transcendental, unknowable Ego, last remnant of the detested "thing-in-itself" (AS p. 359n) (2) The idea of a real unity with spatially and temporally sharp boundaries rather than a relative, "ideal mental-economical" unity (AS p. 22) (3) The "splitting up of the Ego into an object experienced and an active or observing subject" (AS p. 359). (4) The idea of the mental as a component of an irreducible duality of substances.

There is a further dualism that Mach seeks to neutralise; or perhaps it is another way of expressing the elimination of objects. This further dualism is the "popular distinction" between appearance and reality, which Mach says has no scientific meaning (AS p.11). Instead of talking of different appearances of the same body under different perceptual conditions, all we are entitled to say is that a different complex ABC...[physical object] is associated with a different complex KLM...[body of a subject].

The Normal Philosopher holds that there are subjects, experiences which those subjects enjoy, and (standardly) objects which those experiences are experiences of. Mach attacks these intuitions from two directions; he rejects subjects, and also rejects objects, as mere thought-economical pseudo-unities, sets of functionally-related sensations (understood as something neutral). These two aspects of neutralism go together. It is no accident that neutralism implies both a Lichtenbergian antipathy towards the subject, and the rejection of a straightforward mental/physical dichotomy of substances. This is because if "the given" were subjective, it would be hard to resist a mentalist interpretation of the "sensations" or "elements"; and so arises the at first sight strange doctrine that "primitive experience is not first-person experience". The two aspects of neutralism will now be examined in order.

4. Mach and the "consistent attempt to avoid solipsism"

Mach recorded his debt to Hume's rejection of a substantial Cartesian self. But during the 19th century the issue of solipsism had made its appearance, and this development partly motivated Mach's own denial of the ego. He expressed the pragmatic inconsistency underlying sceptical solipsism elegantly: "the philosopher who is a solipsist seems to me to be like the man who gave up turning round because whatever he saw was always in front of him" (AS p. 359). However, the epistemological asymmetry between 1st- and 3rd-personal discourse so exercised Wittgenstein and Schlick that it led them to suggest a non-sceptical, anti-Cartesian solipsism. Carnap also advocated a non-sceptical "methodological solipsism", which constituted his own response to the positivist's need to "objectify" the given in experience. This new kind of solipsism Mach anticipated and, in Carnap's case, influenced.¹⁸

The claim that the eliminative accounts of the self offered by Mach and his positivist successors constitute a new form of solipsism may seem to contradict my opening quotation by Schlick. It is true that Machian neutralism is professedly anti-solipsistic - that is, opposed to sceptical solipsism - and in that sense Schlick is correct. However, the viewpoint Mach expresses is a solipsistic one in its impersonal blurring of the distinction between world and subject, as the following account will bear out.

The eliminative account of the self that non-sceptical solipsists propose undercuts realism and sceptical solipsism.¹⁹ It is foreshadowed by Mach:

If we regard the ego as a real unity, we become involved in the following dilemma: either we must set over against the ego a world of unknowable entities (which would be quite idle and purposeless) [realism], or we must regard the whole world, the egos of other people included, as comprised in our own ego (a proposition to which it is difficult to yield serious assent) [solipsism].

But if we take the ego simply as a practical unity...questions like those above discussed will not arise...(AS p. 28; my square brackets)

A consequence of the interdependence of the different kinds of complex is, however, that the ego can be so extended as ultimately to embrace the entire world - and in a different sense to that intended by sceptical solipsism (AS p. 13).²⁰

This claim Mach elaborates in *Knowledge and Error*, where he contrasts the "restricted ego" with the ego "in the widest sense".²¹ The restricted ego consists just of what is given immediately to me, the content of which others must infer by analogy.²² The extended ego, in contrast, comprises all sensations or elements with which the elements of the restricted ego are functionally related. In this sense I could say that my ego contains the world (as sensation and idea) (KE p. 6). This kind of solipsism seems to abolish the world as independent, blurring the contrast between world and ego. But "[the] conception does not exclude others equally legitimate", Mach continues. It can also be interpreted as allowing a boundary between subject and world which no longer runs round the restricted ego but through the extended one, that is through "consciousness". We could not have arrived at the solipsist position without observing the boundary between my own and others' ego, Mach claims. Therefore the extended ego already contains a recognition of the world and other minds (KE p. 7).

There are interesting suggestions here of later anti-Cartesian solipsisms (Wittgenstein, Carnap, Schlick), in two ways. First and most important, Machian solipsism eliminates the subject and is non-sceptical. It does not suggest that I alone exist and the world is something I hallucinate. Second, talk of "other conceptions equally legitimate" anticipates the conventionalism of Carnap's *Aufbau* and of Wittgenstein's middle period thought-experiments (the oriental despot at *Philosophical Remarks* paragraph 58 for instance).²³

Mach allows alternative conceptions for different reasons to those of the later writers, however. His Darwinian "biologism" means that he does not adopt the thoroughgoing conventionalism of his positivist successors; the extent of our "choice" between competing conceptions is therefore limited. Furthermore, his arguments explicitly do not rely on an appreciation of the 1st/3rd person epistemological asymmetry that concerned Wittgenstein and Schlick. Of this motivation there is in Mach's account a crucial lack, as one would expect given his anti-dualism; this does not augur well for the characterisation of self-consciousness, as will be discussed below. Mach was in many ways as close to Hume as to Wittgenstein and Schlick, therefore. His principal claim was that there are no genuine entities to which "I", "you", "Hamilton", "Smith" refer; he did not propose an asymmetrical non-referring account of "I" which is the mark of a more sophisticated anti-Cartesianism. In the latter respect, however, he is also

close to Carnap; they share a lack of interest in epistemology, at least as it pertains to questions of the self and others.²⁴

5. Mach and phenomenalism

If Mach's account of the subject pre-figures in certain respects 20th century solipsism, his account of objects even more strongly anticipates the phenomenalism which complements that doctrine. Does Mach's contention that objects are simply actual and possible sensations, and his rejection of any full-blooded distinction between appearance and reality, simply amount to phenomenalism? His autobiographical remarks are helpful in answering this question. "Of all the approaches to my standpoint, the one by way of idealism seems to me the easiest and most natural" (AS p. 362). In adolescence, he was a Kantian, but then reacted against the thing-in-itself, experiencing a pan-psychic epiphany in which "the world with my ego suddenly appeared to me as one coherent mass of sensations, only more strongly coherent in the ego" (AS p. 30n). A phase in which he shared for a while Berkeley's belief in an ego or self not identical with sensations, was followed by a Humean one in which the ego too was decisively rejected. In the *Analysis of Sensations* Mach emphatically denies the charge that he is a Berkeleian. Berkeley's "elements" are dependent on an external cause (God); whereas on his view they depend solely on one another.²⁵

Many commentators have drawn the conclusion that Mach's development of Berkeleian idealism led him to phenomenalism. Carnap, for instance, referring late in his career to the influence of "Mach's phenomenalism", said that the choice of a phenomenalist basis in the *Aufbau* was influenced by radical empiricist or positivist German philosophers notably Mach.²⁶ It is true that in Mach's day the label "phenomenalism" was available, if at all, to refer to what Schlick used it for in the *General Theory of Knowledge* of 1918 - the Kantian doctrine that "all we know are phenomena", as opposed to things-in-themselves.²⁷ But there had been a philosopher who was a phenomenalist in something like the present sense of the term, and with whom Mach was familiar, namely J.S. Mill. How closely did these two agree?

Mach says that, like Mill, he doesn't regard the world as a "mere sum of sensations". But he seeks to replace Mill's "groups of permanent possibilities of sensation" with something "much more solid, namely the mathematical concept of function" (AS p. 363). This is because he is committed to the "immanence standpoint" in which only the given is real - a standpoint which tends towards actualism. But Mach gives no grounds for regarding the distinction between functions and possibilities as other than rhetorical.²⁸ There are other differences between the two philosophers however. Mill's famous account of objects as "permanent possibilities of sensation" is the ontological thesis that physical objects are simply collections of actual and possible sensations, where these are construed as mental items.²⁹ This construal is one that Mach resists. The sensations are expressly not mental items; they are neutral with respect to physical objects and sense-data.

That at least was Mach's intention. But can he really preserve the neutrality of his elements? Doesn't neutral monism collapse either into Millian phenomenalism, or into "direct realism"? The direct realist claims that what the subject is directly aware of when he or she is aware of a table, shoe, person or whatever simply is the object or complex of object-parts; and not a set of actual and possible sense-data to which that object is reducible (as phenomenalism claims). Mach's standpoint seems closer to phenomenalism only if we misrepresent his "sensations" as purely mental items. To resolve this question it is necessary to look further at Mach's treatment both of Other Minds, and of merely possible sensations.³⁰

6. Other Minds and the Possibilia

Mach wants to claim both that:

(i) "another's sensations are no more directly given to me than mine to him" (KE p. 6)

and (ii) there is no "essential distinction" between my sensations and those of another person; "the same elements are connected at different points of attachment, namely the Ego's" (AS p. 361)

Proposition (i) implies a subjective interpretation of the elements. Mach recognises the pressure towards this interpretation. Statements that support it include his claim that the sensational presentations ' ' ' of others have the role of "intermediate substitutions" by which the functional relation of K'L'M' to ABC (the relation between human bodies and physical objects which constitutes the behaviour of others) is made intelligible (AS p. 36). Further, it is in practice "by a close analogy" that I know others have mental states, he says (KE p. 4).

But Mach's neutralist inclination was to resist as far as possible an asymmetry between self- and other-ascription of mental states.³¹ Since the ego is, he thinks, a mere thought-economical pseudo-unity, he believes that he is entitled to proposition (ii), which implies an objective interpretation of the elements.

For advocating this interpretation, Mach came under attack from Schlick, who argued that if "elements" are to be experienced by subjects, it is not possible that "the same elements" are connected at different points. My experiences of the very same table, from the very same position at the same time and so on, are qualitatively different from yours, Schlick argues; furthermore, they differ because they are had by different subjects - they are not numerically identical. Schlick's eminently sane conclusion is that, on the immanentist standpoint, "a real world common to all individuals is out of the question".³²

The problem which sensations experienced by others poses for the immanentist is congruent with the problem posed by the merely possible sensations experienced by no one. To the question "What is the difference between perceptions that are actual and those that are merely possible?" the two kinds of answer, assimilating and separating, can be given. To minimise the difference between actual and possible sensations is to tend to an objective interpretation - to assimilate sensations more to objects than to experiences. Sharply to separate them is to tend to a subjective interpretation, with the converse result.

Mach wriggles on this hook; his vacillation is understandable. Either way the elements lose their neutrality; only by fudging the issue is an impression of neutrality maintained.³³

It is not, however, correct to say that a subjective interpretation of the elements tends to a phenomenalist reduction of physical objects, while an objective interpretation tends to direct realism. This is incorrect because the very ambivalence of neutral monism itself influenced the structure of 20th century linguistic phenomenism, and so does not serve to distinguish it from the latter. Mill's phenomenism took sensations to be straightforwardly subjective, but post-Mach, this is an interpretation that phenomenists have resisted. This antipathy, as earlier mentioned, goes hand in hand with non-sceptical solipsism and its elimination of the self; together they comprise the neutralist attitude towards the given. Ayer, in *Language, Truth and Logic*, for instance, insisted that the "sense-contents" of which objects are logical constructions must be neutral, neither mental nor physical. In a neutral monist-sounding passage he wrote:

...the distinction between what is mental and what is physical does not apply to sense-contents. It applies only to objects which are logical constructions out of them...whose elements cannot be said to be either mental or physical. It is, indeed, not impossible for a sense-content to be an element both of a mental

and of a physical object...34

Mach could not of course have followed Ayer when, after the passage just quoted, the latter reminds us that "logical construction" is shorthand for the "syntactical fact" that all sentences referring to objects are translatable into sentences referring to sense-contents. This difference appeared when Machian neutralism was given a "linguistic turn" by members of what would become the Vienna Circle. The twin influences of verificationism and a thorough-going conventionalism encouraged a more sophisticated neutralist stance than that of neutral monism, one in which non-sceptical solipsism complemented linguistic phenomenalism. Mach had attempted to correct the psychological bias of Millian phenomenalism, but had not taken the radical step of replacing Mill's ontological thesis with a semantic thesis - that physical objects are a logical construction from sense-data. Linguistic phenomenalism, as espoused by Carnap and Ayer, achieved ontological neutrality by assigning questions of ontology to a pseudo-problematic metaphysical level and interesting itself solely in the epistemological level. Mach employed the rhetoric of the "pseudo-problem", but his own epistemology was not sophisticated enough to envisage this outcome. His position in the history of phenomenalism, as in that of the solipsism with which it is intertwined, is a transitional one.

7. The Unity of Consciousness

Schlick cautioned against an over-hasty rejection of the immanence standpoint: "To be able to examine this view critically one must become thoroughly familiar with it, and anyone who attacks it without this preparation will generally miss the target".³⁵ In Chs. 25 and 26 of the *General Theory of Knowledge*, he subjected Mach's views to painstaking criticism. Yet there was one central and fascinating problem attached to the immanence standpoint which Schlick did not directly address. This problem is a symptom of Mach's over-reaction to substantial egos which parallels his over-reaction to things-in-themselves.

Mach equated unity of consciousness with ego-consciousness, and so rejected it (AS p. 26). But without the postulation of the unity of consciousness, the following problem arises. I, A.H., am a mere collection of sensations. I am reading a paper at a seminar. Auditory sensation of sound "Mach's neutral monism...", visual sensation of members of audience dozing off, sensation of thirst, of mild anxiety, of amnesia, etc. These, or atomistic analyses of them, contribute to the constitution of that thought-economical pseudo-unity known as A.H. But the connections between these elements are purely contingent; they could be re-constituted into other pseudo-unities which, in our currently benighted state, we would apparently regard as "arbitrary".

Let's take one of these alternative pseudo-unities, whom I will call "The Man of Qualities". He is a rather unusual creature who consists of the concatenation of sensations (i) obtaining at times t1, t2, t3... during the reading of the paper above and (ii) which are regarded as elements of the egos of those in the audience. In other words, he is constituted by the following series: Hamilton's feeling of anxiety at t1, Smith's sensation of nausea at t2, Jones' feeling at t3 that an important truth has been revealed, and so on.

It is crazy to propose the re-constitution of subjects on such a basis, yet what is there on Mach's account to make such a unity any less genuine than you or me? Mach would, I think, respond with the requirements of thought-economy. Given the functional relations pertaining between, e.g. damage to certain complexes (human bodies) and sensations of pain, such a pseudo-unity as the Man of Qualities would not be biologically "convenient". (This biological determination means that Mach's criterion is conventionalist only in a rudimentary sense.) The composites "ego" and "body", Mach claims, have a high practical importance, "not just for the individual but for the species" (AS p. 23). This practical

importance rules out bizarre constructions like the Man of Qualities.³⁶

An impression of circularity remains however:

...the supposed unities "body" and "ego" are only makeshifts, designed for provisional orientation and for definite practical ends (so that we may take hold of bodies, protect ourselves against pain and so forth)...(AS p. 13).

If "we" are only makeshift unities, how can it make sense to talk of reasons we have for designing such entities? Isn't Mach's rejection of the self, like Hume's, formally circular in that it appeals to X in stating identity conditions ostensibly rejecting X? How can the conditions of my self-identity depend crucially on what is convenient for me?

But Mach's thesis is that there is no deep fact underlying self-identity, that the latter is a matter of degree. There is strictly speaking not identity but simply connectedness. The elements making up the Man of Qualities are only very loosely connected, so it would not be useful to allow identity in this case. Mach compares self-consciousness with class- and national-consciousness (AS p. 23), and explains how his viewpoint makes the fact of death less forbidding. His remarks here are very reminiscent of Parfit's account of personal identity.³⁷ There is no circularity in Mach's account of self-identity because he is not presenting an account of self-identity.

A serious problem remains, however. How do I know the collection is mine and not in part someone else's? This is the central problem for "bundle" theorists and their successors. It is not an insurmountable problem for a Parfitian theory, which crucially can allow the subject's immunity to error through misidentification in 1st-person judgments, a phenomenon essential to self-consciousness.³⁸ But Mach goes beyond the Parfitian view when he rejects the division of the ego into an object experienced and an active or observing subject. This rejection is essential to his neutral monism and leads to intractable problems regarding self-consciousness. There is in Mach's account no room for an acknowledgment of the asymmetries of self- ascription and other-ascription, let alone an explanation of them. Self-consciousness is a mystery and this is not the place to attempt to unravel it; but even if Mach's account of it is free from obvious fallacy, the prospects for a Machian unravelling are remote. Schlick appealed for the introduction into the positivist basis of the "fact" of the unity of consciousness. William James, in an earlier repudiation of atomism, wanted to rely on the experience of connectedness among experiences in his own neutral monist construction of the self.³⁹ These writers at least saw the problem; the Douanier Mach did not.

8. Mach's Legacy

Mach was important to the Vienna Circle as a model of anti-metaphysical rectitude (one of the few available to them),⁴⁰ as a positivist philosopher of science, and as a neutral monist constructionist. Carnap's "call for clarity", for a "science free from metaphysics", is an echo of Mach's clarion, as is his rhetoric of the "pseudo-problem".⁴¹ This role of Mach's helps to explain why the strange doctrine of neutral monism was so influential. The anti-metaphysical ideology of Mach was essential to the development of logical positivism; those involved in this development tended to be sympathetic towards the whole package of *The Analysis of Sensations* including neutral monism.

The "biologistic" motivation for Mach's relativism about knowledge means that it is not conventionalist in a modern sense.⁴² But there are passages in which Mach does anticipate the conventionalist

orientation of Vienna Circle positivism. He admits that the neutrality and homogeneity of the elements is an assumption which it is possible, though unlikely, that science may find unproductive compared with a pluralist view (e.g. AS p. 22). This concession is produced by his acknowledgment that "no point of view has absolute, permanent validity" (AS p. 37). He also claims that:

Nothing will be changed in the actual facts or in the functional relations, whether we regard all the data as contents of consciousness, or as partially so, or as completely physical (AS p. 36).

This is combined with a denial of materialism, the belief that "matter is the only thing that is immediately given" (AS p. 358), on the grounds that it amounts to the claim that "the given" is mythical (as Wilfred Sellars later put it). This latter combination of views presages Carnap's two-level analysis in the *Aufbau*, where realism, idealism and phenomenalism conflict at the metaphysical level but are each consistent with neutralist constructionalism at the epistemological level. Carnap argued that the choice between a phenomenalist construction of the Machian sort and a physicalist construction is merely conventional. His position is not just that we interpret the elements in whatever way is thought-economical; but that what the elements are is relative to our conceptual framework. However, as I will argue in the sequel to this article, for various reasons he found it impossible entirely to escape from the earlier Machian picture. There is a neutral monist subtext to the *Aufbau*.

There is a question whether Carnap was a verificationist anti-metaphysician or a Kantian one.⁴³ Does it arise with Mach also? The received view of Mach as a radical empiricist and verificationist is at odds with Mach's professed indebtedness to Kant. In his *Popular Scientific Lectures* he lauded the *Critique of Pure Reason* because it "banished into the realm of shadows the sham ideas of the old metaphysics", and he labelled his own philosophy "empirio-critical".⁴⁴ But Kant, in his critical philosophy, showed a willingness to be a metaphysician in order to be anti-metaphysical. Mach was blind to the metaphysical basis of his own philosophy; there, Kantianism did not occupy the more important position it came to have in Carnap's *Aufbau*.

For all his technical complexity, however, a simplistic quality pervades Carnap's thought about the role of philosophy that owes much to the Douanier Mach. But the urbane, cultivated Schlick, a thinker of wider sympathies, did not escape Mach's influence either. Although as I have discussed, Schlick's critique of the "immanence viewpoint" in the *General Theory of Knowledge* was thorough, the neutral monist influence reasserted itself in his later, Vienna Circle period. Much of the strangeness of Schlick's article "Psychological and Physical Concepts" (1935), for instance, results from its neutral monist origins, in particular the requirement that "the given is extended in space".⁴⁵ The physicalism espoused by members of the Circle took a very different form from its post-war development, because of the conventionalist ontological neutrality that developed out of Machian neutral monism. These further questions will be treated in the sequel to this article. Here, I hope to have shown why the problematic of Mach and his contemporaries needs to be understood.⁴⁶

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