

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—RICHARD AVENARIUS AND HIS GENERAL THEORY OF KNOWLEDGE, EMPIRIOCITICISM.

BY DR. FRIEDRICH CARSTANJEN, Zürich University.

(Translated by H. BOSANQUET.)¹

WHEN Richard Avenarius, Professor of Philosophy at the University, died at Zürich on 18th August, 1896, only a very small circle of philosophers and pupils knew what a powerful mind had been snatched from amongst them; for he was a man whose unique thought was unappreciated by his contemporaries solely because it was unique, and diverged too much from what was previously familiar.

Concerning the life of this philosopher I will merely state briefly that he was born at Paris, 19th November, 1843, that he first devoted himself (by his father's wish) to the book trade, but afterwards studied—for the most part philosophy—at Zürich, Berlin, and Leipzig; in 1876 he attached himself to the University of Leipzig, and in 1877 was called as Professor of Philosophy to Zürich. In 1877 he instituted, with the help of C. Goering, M. Heinze, and W. Wundt, the *Vierteljahrsschrift für wissenschaftliche Philosophie* and continued it until his death, latterly with the help of M. Heinze and Al. Riehl.² In addition to several smaller contributions

¹ For certain awkward expressions Mrs. Bosanquet is not responsible. Without them it is impossible to give correct rendering of the peculiarities of the terminology of Avenarius.

² The *Vierteljahrsschrift für wissenschaftliche Philosophie* is now edited by Fr. Carstanjen and O. Krebs, with the help of E. Mach and Al. Riehl.

to this periodical, Avenarius published *Ueber die beiden ersten Phasen des Spinozischen Pantheismus und das Verhältniss der zweiten und dritten Phase, nebst einem Anhang über Reihenfolge und Abfassungszeit der älteren Schriften Spinoza's* (Leipzig, 1868); *Philosophie als Denken der Welt gemäss dem Prinzip des kleinsten Kraftmaasses, Prolegomena zu einer Kritik der reinen Erfahrung* (Leipzig, 1876); *Kritik der reinen Erfahrung* (Leipzig, 1888-90); *Der menschliche Weltbegriff* (Leipzig, 1891).

In his principal work, the *Kritik der reinen Erfahrung*, Avenarius first makes the attempt to describe all theoretical activity, in itself and in its relation to practical activity (which he also describes more generally) as conditioned by analytically determined changes of the nervous central organ. In this way he arrives at a formal and general theory of human knowledge and action; he endeavours to limit scientific philosophy critically to the descriptive definition of the general idea of experience in its form and context. The following pages, composed at the request of the Editor of MIND, aim at giving a short survey of the new theory, without pretending to exhaust the rich material, or to deal with questions raised in recent discussions.

The best proof of the importance of a theory must be its fruitfulness. But a system so strikingly original as that of Avenarius, and starting from such completely new points of view, contains the promise of great fruitfulness in the mere fact that it directs us into new ways, opens out new perspectives, and shows how it is possible to get quite a new light upon the old problems which are constantly being turned over and over in the same way. This must always have a refreshing and stimulating effect.

Prof. Max Müller has remarked in his *Gifford Lectures* that the human mind has been slowly compelled to admit its entire incapacity and ignorance as regards the relations of the noumenal and the phenomenal. Avenarius has once more removed this agnosticism. He showed that this incapacity and ignorance existed only because the whole problem had been wrongly stated, and that Philosophy had run into a *cul-de-sac* from which she had so far vainly sought an issue. And thus he constructed a theory which not only satisfied the demand that it should be in itself theoretically valid and logical, but which at the same time harmonised with practice and with the common-sense view of the universe.

Avenarius called his theory "Empirio-kritizismus". What does this name mean?

The elements from which the word is compounded are Empiricism and Criticism. As in natural science, and to

some extent also in the art of medicine, philosophical empiricism will accept nothing but experience, and will build upon no other basis; but it forgets to determine accurately the concept of experience from which it starts. The "critical empiricism" which, since Hume, has set about its work more cautiously, looks for the universal element in experience; it tries to find how far we can attain through experience to universal and necessary knowledge, or how far we are forced, by a speculative construction upon the basis of experience, to supplement it by logical inferences. "Criticism," finally, has for its aim, since Kant's time, to establish critically the possibility of knowledge, no matter whether it leads us to a positive or negative result.

Empirio-criticism, on the other hand, takes up the position that everything is experience when it has been stated as experienced by an individual—though it may be that primarily it is only experience for this one individual in question. (If, e.g., a child states that it has seen angels, then the angels are an experience for the child.) But then we investigate the difference between this concept of experience which is valid for the individual and the concept of experience which is universally valid (*interindividuell gültig*). Thus empirio-criticism also approaches experience critically, but it does not determine its concept of experience beforehand; it begins by admitting everything as experience, provided only that it is at the moment predicated and characterised as experience by an individual. It does not arbitrarily limit its sphere, but says: If I am to approach experience critically, then I must include in the object of my investigation all predications which contain an experience; I must not pre-judge the question of true and false, for the decision as to that can only follow from the theory.

Empirio-criticism is then not empiricism; moreover, it approaches its task purely speculatively (in the good sense of this much-abused word), although it builds entirely upon the results of the natural sciences. This speculative character may be frankly conceded without fear of confusion with the speculative method of metaphysics. The speculation in the empirio-critical theory does not extend to the contents of knowledge and experience, but to their universal form. Only the speculative investigation of the contents of knowledge has proved itself to be unfruitful and unscientific.

The *Kritik der reinen Erfahrung* is not only a theory of experience, but, inasmuch as experience is a species of

the genus knowledge, it is also a theory of knowledge. And while in all special theories of knowledge philosophers endeavour to develop what in particular they mean by knowledge, Avenarius, on the contrary, aims only at presenting the common normal element in all such theories, the universal norms according to which individuals determine Being and Knowing. Ultimately, therefore, the *Kritik der reinen Erfahrung* is not only a general theory of knowledge, it is also a general theory of human norms.

What, then, is the standpoint from which the *Kritik* starts? It is not that of a preassumed and dogmatically determined experience, upon which is based the critique of all philosophical or other scientific or prescientific concepts. On the contrary, it is so general that Avenarius cannot describe it better than by saying: my standpoint is purely local. He includes no other standpoint than that where he stands, purely locally in the midst of his surroundings. As Greek tradition says of the philosopher, he stands in the throng of the market-place, not as buyer or seller, but as beholder of all the traffic; he passes through distant lands and mingles with strange peoples, not for the sake of any business, mean or lofty, but in order that he may observe.

We must, however, have some presupposition from which to proceed. That to this presupposition and to its being rightly presented great importance attaches, will be clear to every philosophical reader; everything depends upon the presupposition; if this the foundation of the building does not stand firm, the whole erection will totter.

In stating his presupposition Avenarius begins by banishing from it everything which belongs to particular and specific philosophical tendencies, and which may be regarded as variations of a proposition originally accepted by all men. Thus he proceeded to abstract what had been first introduced into his own view of the universe by the fortuitous and changing influences of life and school, and obtained the following result:—

“I, with all my thoughts and feelings, found myself in the midst of an environment. This environment was compounded from manifold parts which stood to each other in manifold relations of dependence. To this environment belonged also fellow-creatures with their manifold statements; and what they said for the most part stood again in a relation of dependence to the environment. For the rest, my fellow-creatures spoke and acted as I did; they answered my questions as I answered theirs; they sought after the various parts of the surrounding or avoided them,

changed them or sought to maintain them unchanged; and that which they did or left undone they described with words, and gave reasons and purposes for deed and omission. All this they did even as I myself; hence I thought not but that my fellow-creatures were beings such as myself, and that I was a being such as they."¹

Starting from this first natural idea of the universe, Avenarius arrived at the fundamental presupposition, which he has placed at the beginning of his *Kritik der reinen Erfahrung*, and which runs as follows: "Every human individual originally accepts over against him an environment with manifold parts, other human individuals making manifold statements, and what-is-stated in some way dependent upon the environment" (*Kritik d. r. E.*, vol. i., p. vii.).

The presupposition of every science is an assumption that cannot be proved. But just because it cannot be proved, it must, if it is to serve as the presupposition of a scientific system, be privileged as an irrefragable axiom; hence it must not only be as simple and natural as possible, must not only be theoretically correct in itself, it must also agree, both in itself and in the consequences to be deduced from it, with practical life. In one word, it must be not only logically tenable but also biologically tenable and necessary. However differently our views of the universe may shape themselves in detail, they must be based upon this presupposition as their common and most frequently recurring element. And just because it includes only this common element, it will have a universality which differs only from universal validity because, when Psychologies or Philosophies have changed and troubled their view of the universe, individuals no longer recognise the presupposition which is actually a necessary element of their original view of the universe. But in its fundamental presupposition Empirio-criticism is not concerned with that which has developed itself for particular individuals as what to them is logically tenable, but only with such elements as are most often recurrent in all points of view, and ultimately prove to be alone *biologically* tenable.

Does the presupposition with which Avenarius heads his work satisfy these conditions? Yes! It is the common element most often recurring in all views of the universe; all are originally based upon it, it belongs to no one specially, it is undogmatic, theoretically tenable and in harmony with practical life.

¹ *Der menschliche Weltbegriff*, by Richard Avenarius, p. 4. Leipzig: O. R. Reisland, 1891.

It may be objected here: How can that be undogmatic? it is the view of a naïve Realism, and how can it also form a fundamental aspect of Idealism? Here we might answer: Even the most advanced idealist originally accepted his environment as an actually-existent, or as he is wont to call it "real"; for how would it be possible to designate anything as "appearance," etc., or as "non-existent" if he had not originally found it confronting him? Nevertheless Avenarius intentionally omits from his presupposition every specific characterisation of the environment, such, for instance, as is undertaken even by a naïve Realism. The environment is not taken either as "phenomenon" or as mere "appearance," nor as a "middle" between "being and not-being" or as "not-being"; but then neither is it taken as "real," "actual," or "true". For the plain man the characterisation as "actual," "real," does not supervene until he has busied himself with the opposite concept of a "not-actual" or "unreal"; until then, the universe for him is simply there, and he does not reflect upon the specific characterisation of this "being-there".

Thus the empiriocritical presupposition is itself a ground for determining the relation of the "I" to the environment in such a way that both are present as common and inseparable elements. Avenarius says: "We find not only our environment but also ourselves. Our 'I' is found to be present just as much as the environment." This interconnexion and inseparability of the "I" and its surrounding, this essential and inseparable association and homogeneity of the two co-ordinated values, is described by Avenarius as the "*empirio-kritische Prinzipialkoordination*".

This co-presentation of the two members, the corporeal presence of the human being and the spatial presence of the object, other modern philosophers include in the philosophical concept of the "I"; but then they either end in subjective Idealism, which is a flat contradiction to practical life and common-sense intuition, or they give a meaning to the word "I" which it does not possess in our ordinary speech, and in so doing merely add to the confusion of tongues in the sphere of Philosophy. Is it not better to strike out an entirely new conception, such as that of essential co-ordination? It may be inconvenient—as we have to form this conception for ourselves—but it is exact, easy to handle, and fruitful.

Just as other philosophers have regarded the assumption of a soul as the emanation of some special theory, so Avenarius regarded such assumptions as are implied in the

phrase "immediate datum of consciousness". To start from "consciousness" or from "thought" as immediately certain was for him to start from the end. He would have no starting-point except the empiriocritical presupposition. Upon this alone he constructs his theory as follows:—

He analyses the presupposition and finds that it contains three members: (1) the environment and its component parts; (2) fellow-creatures and the self; (3) human statements. Here it becomes necessary to make the reader acquainted with several symbols introduced by Avenarius. Every value which is accessible to description, in so far as it is assumed to be a component part of the environment, he denotes simply by R. In this sense Avenarius speaks of things in space, of physiological stimuli, as R-values. On the other hand, every value accessible to description, in so far as it is accepted as the content of the statement of another human individual, is denoted by E. The contents of statements are E-values.

Finally, that part of the more comprehensive system of nervous central organs in which are collected the changes which issue from the periphery, and from which issue all changes to be passed on to the periphery, is called SYSTEM C (central system). The more exact anatomical and physiological determination and limitation of this system Avenarius purposely reserves, because it has not yet been sufficiently ascertained by the exact sciences, and also because he has no need of it for his purpose.

If, now, we inquire in what manner the statement-values, or as we may say, the E-values, are conditioned by individuals and by the environment (that is, by the R-values), we find that the statements are conditioned only *indirectly* by the environment and its changes, but *directly* by individuals, and more especially by their nervous central organ, by System C and its varying states. But if this is the case the necessity becomes clear of first analysing these varying states of the nervous central organ. This is done in the first volume of the *Kritik der reinen Erfahrung*.

The human individual is assumed to be such that it is able to maintain itself within certain limits. This relative maintenance of the individual will be most closely connected with the maintenance of the most central system, and this in proportion as the System C is developed according to its functions. Here there is no attempt to attribute to System C anything like a *striving to maintain itself*. In pure description, without any admixture of metaphysical anthropomorphism, we can never say an organ strives for something—either for

stability or for change. We simply affirm the fact that system C, when subjected to the stimuli which crowd upon it, does not immediately perish, but maintains itself for a definite time, not absolutely but with diminutions of its maintenance ; and after having affirmed that, we can only state the conditions of the maintenance.

The stimuli from the environment, the R-values, are primarily to be regarded as threats, as disturbing influences, as occasions capable of breaking down the maintenance of system C, and thus we find two values : (1) that of a *disturbance* of the vital maintenance, and (2) that of a re-approach to the (ideal) maintenance-maximum.

The greatest conceivable vital maintenance-value must not be identified with anything like the greatest conceivable pleasure, or the greatest development of power. Its significance is not psychological, but only logical, and as a *constant* value is unattainable in life. Psychologically it may be compared with the Nirvana of Buddhism, which is explained as the absolute cessation of the bodily and mental activity which is conjoined with personal existence, as the absolute rest which the Oriental takes to be the highest pleasure. In the *purely logical* significance, in which alone empirio-criticism uses the value "vital maintenance-maximum," it signifies only an ideal point, about which the life of the organism moves in constant oscillations, like the indifference-point between pleasure and pain, which also has only a logico-mathematical significance.

Now, vital disturbance is one of those changes in the state of the nervous central organ which we have noticed above, and by which the E-values are directly conditioned. But this change may be more accurately described ; it has a special character. If I break a stick, that is changing it ; but the stick never becomes whole again. It is different with the nervous central organ. When changes take place in it there are generally present also the conditions which annul the change. Vital disturbance is for the most part gradually annulled ; then the system C approximates again to its maximum-maintenance. Thus the change which we have here differs from that in the stick inasmuch as it consists in an oscillation between two phases, in deviation from a preliminary value and in approximating to it again. Thus we have to do with a *process* of change which is itself compounded from various changes.

All R-values, the totality of all physiological stimuli, condition the deviations from the vital maximum of maintenance. But what are the conditions of the annihilation of

this disturbance, *viz.*, of the re-approach to the maximum of maintenance?

The environment, which is primarily hostile, must nevertheless be regarded also as favourable to maintenance, as *maintaining*, in so far as it is considered as *training* the individual in habitual modes of behaviour; and this concerns not only the environment in particular factors, not particular R-values, but all together. The same stimuli which condition a vital disturbance, contribute also to maintenance, and *vice versá*. *Work*, for instance, is not an exclusively *destructive* factor; while, on the other hand, *nourishment* is not an exclusively *maintaining* factor. This is proved by the fact that an organism degenerates and finally perishes just as much when it is merely nourished (without being subjected to work), as when it merely works (without being also nourished).

Our maintenance is then conditioned by an equilibrium between a customary work-process, and a customary nourishment-process. On the other hand, by the preponderance of the one factor over the other, *viz.*, by an alteration in the amount of exercise of one of the two factors, a deviation of system C from this equilibrium of the maintenance-maximum is given, and this deviation Avenarius calls a *vital-difference*.

Now this is a very important conception, for by placing our whole life with all its action and thought in relation to the vital maintenance-maximum, we can comprehend this action and thought also in its totality as depending upon such vital-differences and their annullment. "Life" is not inaction and rest, but movement; and movement is here equivalent to continual oscillation about an ideal point of rest.

Thus the process of change in the nervous central organ begins with the vital-difference; with the annulling of the vital-difference the process of change in each particular case attains its end. All the changes which lie between this beginning and end follow each other immediately; they form a series, which Avenarius calls the *vital-series*.

We will first consider the case in which a vital-difference arises as follows: A uniform increase of nourishment may take place in some individual, and may then be annulled by an equally uniform increase of work. Both must be habitual and familiar to the individual in question, and both together form a vital-series of the first order.¹ Thus the vital-series of the first order would be composed in this way:—

¹ For the sake of brevity I may here disregard the fact that Avenarius particularises and describes a third special and concluding term in the series.

(1) *Habitual increase of nourishment*; (2) *Habitual increase of work*.

Let us now see what significance that has for our action and thought. It is unnecessary to deal further with the process of nourishment (I may even assume it to take place during the night's sleep); then I have only to explain more in detail in what the work-process for a vital-series of the first order consists.

Since this work-process is taken to be completely uniform, habitual and familiar, its chief characteristic will be that it excites no attention from us, that we are not conscious of it. Such a uniform familiar increase of work is given to us in our daily movements, in the amount of light, sound, touch and other stimuli which are daily necessary to us. We arise from our couch in the morning strengthened and refreshed by sleep, provided, as we are accustomed to say, with a certain amount of elasticity; or, to speak in the more accurate language of empiriocriticism, provided with a certain uniform habitual increase of nourishment. In this alone is already contained a vital difference of the first order, a deviation from the maximum of maintenance. Now in so far as system C maintains itself, this demands to be annulled, and for this purpose all the accustomed stimuli of the environment form conditions for working it off.

Here belong even such uniform and familiar work-values as the home as such; the size of the room, the colour of the walls, the ornaments on the wall, domestic arrangements (in space and time), our parents as the confidential friends with whom we share our experiences, the tacitly assumed understanding with our fellow-men, their estimation of us, in fact all the thousand details of manners and intuitions which we have in common with our surrounding, details which are really active at every moment, but to which—so long as they are active—we do not attend at all. In all these we have most important work-values, which constitute our "ordinary," if you like "philistine," life, and to a large extent also the "standard of life," work-values which we would not and could not do without, but of which we are not generally conscious until they are absent.¹

Let us now pass to the *second case*.

It will not always happen that a given familiar increase of nourishment will find for its compensation just that increase of work which is *suivable* and also *familiar*. Indeed it hap-

¹ See my introduction to the *Kritik d. r. E.*, under the title: "Richard Avenarius' biomechanische Grundlegung der neuen allgemeinen Erkenntnistheorie," München, 1894 (p. 119 ff.).

pens only too often in life that an increase of work is given which has *not* the value of a familiar one. This unfamiliar increase of work, then, has the significance of a *variation of work*.

With this variation of work is introduced a vital-difference of a higher order, the vital-difference *κατ'ἐξοχήν*. In so far as system C (and with it the individual) maintains itself, we must think of it as passing to definite changes of itself, by means of which the variation in work is annulled; and these changes will continue until a change supervenes, such that by it system C again attains for the moment to its vital maximum of maintenance. That these changes in system C are of a most manifold and complicated kind is a matter of course. That need not prevent us from comprehending them for the present under the name "Compensating-adjustments of system C". Thus we are enabled briefly to review the terms of a *vital-series of the higher order*.

It will be composed, *e.g.*, of the following terms: (1) *Habitual increase of nourishment*; (2) *Habitual increase of work, set for a short time*; (3) *Variation of work*; (4) *Compensating adjustments until the vital-difference is completely annulled*.

Here again we may consider what significance this series has for our action and thought. As an instance which indicates all these terms neatly and clearly I select the well-known one from F. A. Lange's *History of Materialism*, vol. ii., p. 370. "A merchant sits comfortably in his arm-chair, and does not himself know whether the greater part of his Ego is occupied with smoking, sleeping, reading the newspaper, or digesting. A servant enters, bringing a telegram in which is written: 'Antwerp, etc. Jonas & Co. have failed.' 'Tell Jacob to harness the horses.' The servant flies. The man has sprung up, wide awake; he takes a few steps through his room, goes down into the office, informs his representative, dictates letters, sends off telegrams, and gets into his carriage. The horses snort; he rushes to the bank, to the exchange, to his business friends—before an hour is over he is again at home, throwing himself into his arm-chair and sighing: 'Thank God, I am safe from the worst. Now to consider further.'"

All that the merchant does and says are for empiriocriticism E-values, which are conditioned by certain changes in the system C belonging to the merchant in question. I will analyse this more fully.

"The merchant sits comfortably in his arm-chair"—we think of his system C as provided with a uniform habitual

increase of nourishment (term 1). The characteristic expression "he himself does not know, etc.," shows us neatly how the subsequent work-values, being habitual and familiar (term 2), attract no attention to themselves. It is the *usual* cigar which the merchant smokes, it is the *usual* newspaper which he reads, *familiar* in form and type, in its political views, etc.—and it is also the *familiar* environment in which he finds himself, so familiar that he no longer notices its arrangement, its component parts and their qualities. As yet then we are still dealing with a vital-series of the first order like those mentioned above. (The two first terms of a vital-series of the higher order coincide with the terms of a vital-series of the first order.)

Now something fresh intervenes, the telegram: "Jonas & Co. have failed". What is now introduced no longer fits in with the course of a vital-series of the first order as sketched above (p. 458). An increase of work is indeed given, but its value is no longer that of a *habitual* one. Here then we have the varied relations of the second case, a vital-difference of the higher order, characterised by the appearance of a variation in work (term 3).

All that the merchant thinks and does in the time subsequent to the receipt of the news, all his action and thought, is to be taken as dependent upon the very varied and manifold *adjustments of system C*, which finally annul the variation which has been introduced—in so far as system C asserts itself under the diminution of its vital maintenance-value (term 4). In conclusion, however, such a change is brought about in system C as actually annuls the variation of work. Upon this depends the concluding E-value of the individual in question: "Thank God, I am safe from the worst".

I have already mentioned that the adjustments of system C in annulling its changes may be most varied in kind. In the first volume of the *Kritik Avenarius* submits them to a searching investigation. From this I select only the distinction of changes conceivable in system C into ectosystematic and endosystematic. Those changes are called ectosystematic which, though their first phases occur in system C, complete their course outside of it, as in movements of the limbs. Those changes are called endosystematic which take place entirely within system C. When, for instance, something is lost, the vague running and searching for it depends upon ectosystematic changes; the reflective consideration of the circumstances in which it was mislaid or lost depends upon endosystematic changes. When philosophers try to solve the ques-

tion as to the "origin of consciousness" by "thought," this solution depends upon endosystematic changes; when the physiologist, on the other hand, institutes practical experiments in reference to this problem, it is by means of ectosystematic changes that the vital-difference is annulled.

From his detailed analysis Avenarius gets as the most important of the endosystematic (*i.e.*, occurring within system C) adjustments—

(1) Temporary *superseding* of an unfamiliar kind of change by a familiar, upon which depends the reduction of the Unknown to the Known;

(2) Gradual habituation to a kind of change, which in its original unfamiliarity signified a vital-difference; upon this depends the gradual growth into another and originally strange apprehension; the Unknown becomes a Known.

(3) Temporary *substitution* of one kind of change for another, giving rise to permanent tendency to the mode of change substituted. Upon this depends the origin of statements which are fixed and unalterable, the so-called True, the Certain, the Eternal, etc., while at the same time that which to begin with had been true becomes untrue and uncertain.

We began by pointing out (what is here again clear) that the processes of change in the nervous central organ are analysed by Avenarius not for their own sake only, but because he aims more especially at establishing the relation between all human thought and action and those processes. This I will show by examples for the three groups of adjustments named above:—

(1) When an individual explains the origin of the sea as "perspiration of the earth-body," or the likeness of a child to his deceased father as "inheritance of the soul," we have within these E-values a reduction of the Unknown to the Known, and for the process of change in system C a superseding of an unfamiliar kind of change by a familiar. The following is another instance of this: Sir J. Lubbock tells us of the Minatarris that they were greatly astonished when they saw an American gentleman absorbed in the *New York Commercial Advertiser*. As they had never heard of reading and now saw a newspaper for the first time, they considered as to what it might be. Thus the newspaper started a vital-difference in them, to annul which their C-systems passed to a series of changes. The vital-series thus formed was brief; it came to an end in one of the savages in the E-value that the newspaper was a medicinal cloth for sore eyes. Here

again, then, we have a superseding of the kinds of change as explained above.

(2) When in the course of time a strange land becomes home to the exile, when heathen peoples gradually accustom themselves to the new Christian faith brought to them by missionaries, when the discovery—at first so strange—that the sun stands still and the earth moves round it is at last accepted as natural and certain, in all such cases we have an acquisition of E-values, which depends upon the acquisition of a kind of change which originally signified a *variation* of work, and now becomes a *familiar* exercise of work. Here we have no kind of superseding, but a mere acceptance.

(3) For the Eleatics the universe, in so far as it is variable, was "illusion," while in so far as it is invariable they called it the only "real" and "exclusive Being," and this depends upon the same substitution of kinds of change as when an individual begins to regard variable matters and events, the joys and sorrows of this world, as "empty show" and "vain trifling," while a religious "ideal," a life after death, seems to him the only "true" "eternal" life. In both cases we have a substitution of interests directed towards a "permanent," which is dependent upon a substitution of kinds of change. We may refer the following instances to the same gradual formation of a constantly functioning kind of change: the longing of the Buddhists for Nirvana, Plato's *Eros* for absolute being, the longing for salvation of the earlier Christians, Spinoza's *Amor erga rem aeternam et infinitam*, the naturalist's search for generic concepts and natural laws.

Does not all evolution of science follow the scheme of these three groups of endosystematic adjustments of the system C? All these manifestations of human thought-activity, widely different as they are, all these E-values, are referred by Avenarius with the greatest ingenuity and acuteness to the vital-series and their course; in other words, he shows their dependence upon these. Nay, he even goes further and says: If the E-values ultimately depend (directly) upon the changes of system C, then we must also be able to find groups of E-values which depend upon the particular *characteristics* of the changes.

This he does in analogy with the fact of acoustics that, in talking of sound-notes, particular statements correspond to quite definite characteristics of one and the same external motor-process. Thus, *e.g.*, a statement as to its *strength* depends only upon the *amplitude* of the oscillations, a statement as to its *pitch* depends upon the *number* of

oscillations, and a statement as to its timbre depends upon the form of oscillation.

But the external motor-process (here the oscillation) is never more than the indirect condition, and only the internal motor-process, *viz.*, change-process of the system C, is the direct condition; hence Avenarius endeavours to show in the latter also the corresponding characteristics to which particular statements may be assigned, as values dependent upon them.

He distinguishes in the change-process of system C the following characteristics: (1) Form, (2) magnitude, (3) direction, (4) relevancy (significance), and (5) familiarity. To these characteristics are assigned definite groups of E-values which Avenarius calls "fundamental values". (1) To the form of the change-process are assigned all statements which are dependent upon the general sense (sense of touch, pressure, temperature), and upon the senses of hearing, smell, taste and sight; all, therefore, which Psychology has hitherto liked to call "sensational quality". Avenarius does not use this expression, as for him "sensation" itself is only an E-value, not a metaphysical something which individuals merely "have" or "possess," and which can be investigated apart from its conditions, *i.e.*, from the appropriate changes of system C.¹

(2) Next, the E-values of intensity, as, *e.g.*, "strong," "weak," are logically assigned to the *magnitude* of the change-process.

(3) The statements "pleasure" and "pain" are made to depend upon the *direction* of the change-process; the E-value "pain" is conditioned by disturbance of the vital maintenance-maximum, and the E-value "pleasure" by re-approach to this maximum.

(4) The *relevance* of the change-process forms a further characteristic. This does not depend upon the magnitude and strength, but upon the significance which the partial system just affected has for the whole central organ. The magnitude depends upon the divergence from equilibrium; the significance, on the other hand, upon natural disposition and training. According, therefore, as the change-process affects a partial system which is or is not highly developed by its disposition and training, it will assume a different value although the magnitude may be the same. The E-values of

¹ Compare with this important question the article of Jos. Kodis, Ph.D., "Der Empfindungsbegriff auf empiriokritischer Grundlage," in *Vierteljahrsschrift f. wissenschaftliche Philosophie*, 1894, xxi, 4, p. 425 ff.

the general emotional attitude, the movement of feeling, moods, etc., are assigned to the characteristic of varying relevance as thus described.

(5) The mode in which a change-process is affected by practice and training is defined as a further characteristic,—it is called familiarity; and to this Avenarius assigns those E-values which are most influenced by habit, *i.e.*, the three great groups of statements, “real,” “known,” and “certain,” with all their variations.

If now, instead of a vital-difference of the first order, one of a higher order introduces itself, that is, a *variation* of work, then the variation of the change-process may have special reference either to the form, or to the familiarity, or to the totality of the inner connexions, etc.

(1) In variation of the form we get on the one hand a *deviation* from the *familiar* form, on the other hand a *re-approximation* towards it. To these are assigned the groups of statements expressed in terms like “differently,” “in other manner,” etc., and “the same,” “in like manner,” etc.

(2) When the familiarity of the change-process varies, then we get the statements which depend upon varied, *i.e.*, diminished, familiarity: “less real or not real,” “unknown,” “uncertain,” etc.

(3) When the *totality of the connexion* of the inner change-processes *varies*, these latter become more active, more differentiated, more articulated. The progressive perception of finer details (discrimination) is made dependent upon this—a most interesting inclusion of the problem of attention in the general connexion between E-values and the change-processes of system C.

Now, readers may ask to what purpose all these classifications are made. In assigning those great groups of E-values to certain conditions defined from a merely logical point of view, Avenarius does not purpose to *explain* the *content* of these E-values, but he is enabled to determine the *general form* of their dependence and to find the unit, without which a general view of the world is impossible. He paves the way—not for the psychologist in the metaphysical sense—but for the physiologist, who is now confronted with the task of setting forth what those conditions, which empiricism defines in a purely logical manner, really are, of what *physiological* processes they consist. Without this methodological investigation, the physiologist is perplexed with superabundance of details, which, however exact they may be, he is not able to unify.

We must say one word more as to the way in which

Avenarius defines this dependence which I emphasised so often. If he is to give us a *general* theory, *above* all parties and including all, then here, as in the presupposition from which he starts, he must keep free from all dogmatic definitions. Hence he says: we know nothing of any mediation between "physical" and "psychical"; we accept no soul or reason, no consciousness, as a kind of *spiritus rector*—we know nothing of any *transition* from the physical to the psychical, but we also know nothing of any principle of *parallelism* between the two series of phenomena, nor of any causal connexion whatever. This all proceeds from special theory. What we know and have to determine is merely this: where "psychical values" are found these definite physiological states are also present, and differences in the physiological functions of organisms are accompanied by differences in the psychical values which are stated by the same individuals.

But to determine this it is quite enough to say: we have a relation between two terms such that *if* the one term alters, *then* the second alters also. This relation Avenarius describes, connecting it with the mathematical conception of function as a *logical functional-relation*.

By this conception of the *logical functional-relation* Avenarius is enabled to avoid completely the conception of causality, he has no further need of it; and this is the more advantageous because even causality itself conceals something dogmatic, something which is not to be found by pure description.

Here Avenarius agrees also with the well-known physicist and philosopher of Vienna, *Ernst Mach*. The latter, in his *Prinzipien der Wärmelehre*, says in an interesting chapter on Causality and Explanation (p. 433): "When we try to get rid of the traces of fetishism still adhering to the concept of cause, when we consider that as a rule no *one* cause can be assigned, but that a fact is generally determined by a whole system of conditions, then we are led to relinquish altogether the concept of cause. It is far better to regard the conceptually determining elements of a fact as *mutually dependent*, in exactly the same sense as does the mathematician, or geometrician." And again on p. 435 he says: "Only the relation of the actual to the actual has any value, and this relation is exhausted by description".

To Avenarius the important point was the methodological need, that just as we are able to think of the lower organised nervous systems as functioning without consciousness, so also we should be able to think of all human doing and

striving, all action and thought, imagination, hope and love, without immediately invoking a spirit in explanation.

Of course we cannot demand the proof that certain changes in system C of an individual really take place *without* consciousness; but then the proof that they take place *with* consciousness is also impossible. The proof, however, is quite unnecessary. All that we are concerned with is, how we are to think of these changes as happening.

If it is possible to think of the whole infinite manifold of our action and inaction as taking place without being forced to introduce a soul, a consciousness, etc., in order to explain it, then the assumption of this, as of all other faculties, motive-powers, etc., was a superfluity with which we can dispense. If we can conceive of all without any insoluble remainder or contradiction, apart from these metaphysical factors, and if in doing so we find no trace of the smallest gap and have no need to revert to them, then these factors have been a superfluous assumption which we drop, as we should also drop the atomic and æther-hypotheses if we could think of phenomena as taking place otherwise without contradiction.

But in any case for a general theory of knowledge such as Avenarius proposed, it was important under no circumstances to begin *with* a soul, *with* a consciousness, *with* a thought, *with* a will, etc. That were to begin with something unknown, and to convert an explanatory hypothesis into a dogma—briefly, *to begin at the end*.

If, then, we still desire to regard Philosophy as Science—and that is what we desire—we must begin *without* the hypothesis of soul or consciousness as the immediately certain.

But, it will be asked, is not that what materialism also does?

No! There is a difference which must not be overlooked. For the materialist in beginning without consciousness makes the denial of it a principle; he establishes a principle, and thus begins with a dogma concerning the nature of man, which is just as much unproved as if he should begin with its opposite.

This was not the procedure of Avenarius. He will at first say nothing about the nature of man and his "physical" and "psychical" values; beginning without metaphysical factors he will establish no principle, only a *method*. And that is the great and important difference: For materialism, to begin without a soul is a principle; for empiriocriticism it is a *method*, a method which is justified by the hypothetical

character of these presuppositions. Nothing is affirmed by them, and nothing denied; only it is said: We know at present nothing.

And how if in following this method consistently we finally arrive at that consciousness or soul, of which at the beginning of our investigations we were obliged to say that we know nothing? Why, *then* it must be so, then both would have become for us an "immediately certain," upon which we could take our stand in other investigations. But the *justification* of this method will be in no degree impaired by this *ultimate* result.

In the first instance then we must confine ourselves to those changes of state in the nervous central organs upon which everything is based, the changes and series of changes in system C. It is from the nature and the states of the central organ alone that the one simple principle must ultimately proceed to which we may refer all the most complicated manifestations of our being, as well as our most simple movements. And to these changes in system C are added by the individual those statements (E-values) which describe the counterpart of that essential co-ordination of which the central term is the individual himself who makes the statement.¹

Simply to identify the doctrine with Materialism and Realism, or to regard it as a variety of these and say that Avenarius holds a "Psychology without a soul" in the same way as Fr. Alb. Lange, would be to mistake the very key-stone of his theory, that generality to which, from his purely positional standpoint, he attains by his method of pure description.

To bring this generality well into the foreground I will here notice the attitude of the *Kritik der reinen Erfahrung* to the book of books, the Bible. For the doctrine of Avenarius, if it is general, must cover even the views expressed in the Bible. Avenarius has explained himself on this point in the *Kr. d. r. Erf.*, vol. ii., p. 486, note 153.

He says there: "If we allow in general the unity of the plan of creation, then the pre-eminence of my uniform point of view should also be allowed, even from the standpoint of the biblical history of creation. If God made man *first* from a part of the environment (the dust of the ground) and *then* breathed into him the 'breath of life,' then the internal arrangement of the parts of the system C thus formed was determined and created before the work of art itself was set

¹ See Avenarius, *Der menschliche Weltbegriff*, p. 128.

in motion. Even from this standpoint of the biblical history of creation, we might first analyse these changes of system C which are predetermined by its arrangement as conceivable (hence *before* we had to regard them as wholly or partially realised in consequence of the inspiration of the living breath), and *then* we might connect these processes methodically with the manifestations of the 'living soul' occasioned by the inspiration."

But this is what Avenarius *did* in his general theory of knowledge. He first investigated his fellow-men themselves and their movements and sounds in a purely mechanical way, purely according to their mechanical significance, but from a methodological point of view; in this way he obtains his vital-theory of the changes in system C, and then, but not sooner, he assigns to them their so-called "psychical" values, the E-values.

"On the other hand"—Avenarius continues in the same place—"it agrees both with the uniform plan upon which system C is based and with the construction of system C, which is then independent of the possession of a consciousness, that under certain conceivable circumstances, not to be foreseen by the 'created beings,' system C is so arranged and disposed as to be capable of maintaining itself under diminution of its vital maintenance-value, whether the 'created being' is in other respects a higher or a lower one. And this means . . . it must correspond even to the standpoint of the biblical narrative of creation, that we should be able to think of all purposive practical or theoretical behaviour as following one and the same scheme. So it is, *e.g.*, when the brainless frog substitutes a more remote movement, when the one first made and most familiar to him fails of its result; or when a chained fox, after first trying in vain to reach with his fore-feet the food which lies too far off, turns round and gets it with his hind-feet; or when the child passes to continually new and more complicated movements to attain the same end; or when a speculative thinker, after first trying, but always failing, to prove the proposition 'God is the unconditioned, upon which all conditioned must be based,' finally converts the proposition into the thesis, 'The unconditioned upon which all conditioned is based, I call God'; or when the mathematician, in order to make his 'space-intuition' (or more accurately his 'estimates of mathematical spatial images') in a corresponding degree infallible, passes from the objects given by intuition to the objects given by definition, which objects the mathematician himself chooses and determines."

It is well known that all religions are anthropomorphical; but are not the natural philosophy of to-day, the psychology of to-day, and all philosophy of to-day, anthropomorphical also? We speak of the "inertia" of matter, the "resistance" of atoms, the "action" and "re-action" of forces, the "kindness" and "wisdom" of nature, of the attention which is "directed" to this or that, of the will which "leads" us and is the "impulse" of our actions—sensation, feeling, ideation, and thought—all is made anthropomorphic and is treated from an animistic point of view, even by the so-called empiricists.

The hidden ground for this is to be found in the relinquishment of the natural concept of the universe, in the division of the one universe into an inner and an outer world, in the division of the one course of events into a physical and a psychical, and in the need of connecting and uniting what has been artificially separated, the need of finding a mediator between the universe of "Being" and that of "Thought".

Avenarius, on the contrary, has succeeded in once more presenting a view of the universe as one, which corresponds to theoretical as well as to practical needs. He comprehends all our action and thought as E-values, which depend immediately upon the change-processes in system C, and mediately upon the change-processes in the component parts of the environment, of R-values.

If, *e.g.*, I have given to me for investigation the statement of an individual, "I have the perception blue," I may approach my task both from the side of the designation and from the side of *that which is designated*.

If I approach the task from the latter side I find nothing but R-values, first, the external change-process, the vibrations of æther, second, the inner change-process, the brain-process. This mode of regarding what takes place is called the *absolute* method. Both processes are measurable events, and have a chemical or physical significance; but they differ in that the external change-process has *only* this chemico-physical significance, while the inner change-process has this and yet another significance, the meaning, the sense or content.

In referring to the inner change-process, I have turned from the absolute point of view to another which is called the *relative*, because the relation between the individual and the objects is now discriminated. In this relative point of view I find nothing but E-values, *viz.*, in this case I do not mean by "tree" a part of my environment, nor by "blue" the vibrations of æther, nor by "perception" the brain-process, but the meaning which the word "tree," "blue,"

“perception,” etc., possesses as its own characteristic meaning in contrast to other meanings. Inasmuch as the relative point of view cannot but finally become absolute, I may again regard the relation between the individual and the surroundings (in reference to E-values) in an absolute manner. The result is, generally and normally, that with the process in System C, or in a partial system, there is connected by the continuation and extension of the change-process, a secondary process in an adjacent partial system. By means of this secondary and centrally-conditioned process a sound-complex, which has become firmly associated with the first process, is either uttered by actual movement of the organs of speech or brought into recollection; thus we get, in the first case, the ectosystematic E-value, the verbal denomination, or, in the latter case, the purely endosystematic E-value.

Therefore the signs or R-values, and that which they signify—the E-values—may be regarded as coinciding. They differ only as different modes of viewing the same process; and the two modes are not, as might be supposed, distinguished by their form but by their content; for, from the absolute point of view, we consider only the parts of the environment, or the individual co-ordinated with them; from the relative point of view, we consider, first, the parts of the individual, secondly, the individual, and thirdly, his statement.

According to this view, which may be constructed directly from the theory of Avenarius, we have in the statement “I have the perception blue,” a series of signs, of which I will consider at present only the signs “perception” and “blue”. One of these, the sign “blue,” characterises and describes the object, the counterpart in the essential co-ordination present, and the external change-process; the sign “perception” on the other hand characterises and describes not only this, but also and as well the relation to the subject, the central term of the present essential co-ordination and its inner change-process, its momentary re-action in distinction from other conceivable reactions, *e.g.*, “ideation,” “recollection,” etc. So long as the individual observes and describes naïvely, he is content merely to describe the object, as in the statement “that is blue”—he does not characterise himself or his specific activity more accurately because he himself, as the relatively constant term of the essential co-ordination, is forgotten or overlooked. It is only when the individual begins to observe relatively and reflects upon himself as the subject, as well as upon the object, that he characterises his own activity, his own processes in relation and co-ordination to the external

processes, more exactly as "perception" or as "ideation," etc.

In Empiriocriticism, then, we must regard "perception" as being a sign in just the same way as "blue"—both complexes of sounds are dependent upon a secondary change-process and enable the individual to characterise in the one case the external condition, R, in the other the relation of this R to the constitution of the system at the time in question. In using these signs the individual does not intend to say what the external condition of change, or the object, is in itself (*e.g.*, it is blue in itself, *i.e.*, without being in the relation of essential co-ordination to an individual), nor does he intend by his statement to denote that he himself brings a subjective faculty (the faculty of perception) to the blue which is present outside. The external condition of change is not blue in itself, and the individual *has* not the perception.

The question as to the object "in-it-self" is absurd, for it means a question as to an object which is not an object for any one. "Apart from the logical contradiction of this question," says Avenarius, "it is also full of contradiction from the point of view of a general theory of knowledge. We may, indeed, think of an environment into which no human individual has as yet entered; but we cannot think of any part of this environment, nor any part of any environment at all, which is not also a counterpart, or what is the same, we cannot think ourselves (as central part) away. What we can do in this respect is either to *disregard* ourselves, or to think that at one time no living being was to be found in the whole world. But in the first case, when we ignore ourselves, we merely play the part of the unnoticed spectator; or, if we like, of the spectator who is so absorbed in looking that he forgets himself in the spectacle. In the second case, where we assume that at some time there was no living being in the world, this world still remains for the questioner the totality of his counterparts—he merely admits no *other* central parts (himself, as we have said, he cannot think away) to whom *his* counterparts might also be counterparts. But for the parts of the environment to be counterparts it is sufficient that he, the questioner, continues to be the central part; and that he continues to be, so long as he still confronts the universe with questions."

But the other suggestion, that the individual has the *perception*, is also absurd; it means that he *has* the perception *in himself*. The individual has indeed his brain in himself, and in the brain the cortical layers of the cerebrum following

the outer layer of the neuroglia, and in these the separate cortical cells, and in these the cell-nuclei, and so on. All physiological processes and states of the organs and their parts are in him ; but never a perception, sensation, idea, etc.

It is just the same with a thought and with thinking. Avenarius says expressly : " Analysis of that which is called ' I ' tells us indeed that it has a brain and thoughts, but it never tells us that *the brain has the thoughts*. A thought is indeed a thought of my Ego ; but it is not therefore a thought of my brain, any more than my brain is the brain of my thought. That is to say : The brain is not the dwelling-place, seat, producer ; it is not the instrument or organ, not the supporter or substratum, etc., of thought. Thought is not the inhabitant or commander, not the other half or side, etc., but neither is it a product ; it is not even a physiological function, or merely some state of the brain."

All functions of the brain are qualitatively the same, even as change-processes ; they vary only according to form, magnitude, direction, connexions, etc. " Thought " is only the designation and characterisation for the starting of a change-process, which is not peripherally but centrally conditioned, and which is therefore not a primary occurrence, but a reproduction ; and " thinking " is only the designation of the process of combining thoughts in series.

But still the expression, " We have in us perception, thinking, etc.," may have a true meaning. By the proposition " London is on the Thames " I do not mean to say that the *sound-complex* " London " is on the Thames, but " that which is designated as London " ; and in the same way by the proposition " We have in us a thought " I may mean " We have in us what is designated and characterised in reference to its specific conditions as ' thought ' ". But that is the change-process specifically determinable by its constitution and characteristics, and this we indubitably have in us. So long as I mean to say only this and nothing else I am correct.

But that is just what the prevalent Psychology and Philosophy does not mean to say ; it is rather of opinion that in addition to the physiological process we have something else in us, a metaphysico-animistic something, by means of which the physical first becomes, as it is called, " psychical " ; e.g., a perception *by means of* which we project our impressions, a thinking *by means of* which we first attain to thoughts, etc. Knowing how easily our language with its constant anthropomorphism misleads us into errors, Avenarius urges that we should never say that perception, sensation, thought, consciousness, etc., are in us, but merely

that change-processes are in the organism, more specifically in the nervous system, in the central organ, in system C, etc.

On the other hand, Avenarius does not identify change-processes with "perception," "thought," as the materialist does, when he follows the well-known saying of Vogt that thoughts are a secretion of the brain, just as urine is of the kidneys. When Avenarius analyses from the absolute point of view that which is designated he is dealing only with the external and internal change-processes, with their conditions; when he analyses the designation from a relative point of view he treats of the significance, the meaning, the content, which we connect with a word in its dependence upon certain characteristics of the change-process. Thus in the second volume of the *Kritik* he arrives at the result that by the sign "perception" we mean at bottom only the same as by the sign "thing," and that by "idea" we mean the same as by the sign "thought"; the distinction in each case is only that by "thing" and "thought" we characterise the way in which *just an E-value* exists for us, while on the other hand by "perception," "idea," we characterise the way in which an R-value exists *just for us*. In the first case the E-value is a "sign" for the object, in the second a "sign" for the relation of that object to the subject of the same essential-co-ordination.

Just as the sound-complex "London" is not what is designated, but is used for what is designated, so also the E-value "perception" or "red," etc., is not a change-process of system C and not a change-process in the surrounding. Indeed we can never say more than "Every E-value is characterised as that which, at the time of its existence for the individual, attains to being named".

It is conceivable that organisms of the lowest kind have originally only the primary change-processes, which disappear quickly and completely, without leaving any residual effect. For such beings without any residual effects of change, the environment would be always strange, however often it might be presented to them as stimulus. Each stimulus and each complex of stimuli would be new every time; they would have no sign by which they might be distinguished and remembered. Only when the residual effects of change have been developed and elaborated, and the secondary processes have arisen through extension to adjacent cells and subordinate organs of the central organ, do we get the important circular process, from any point within which the whole complex of changes may be set in motion. The possibility of changes which are centrally cou-

ditioned comes first with the residual effects of change and the secondary processes. There may now be associated with the peripherally conditioned process, one which is centrally conditioned, the repetition of the first eliciting repetition of the second.

As we say that a sound has content and significance when we *think* something in connexion with the sound, so also the primary change-process receives meaning and content for an individual from the response of a whole series of secondary processes, which associate themselves to the primary, and this association takes place in a definite order. Thus the E-value is already forthcoming before the sound-complex is there. In the formation of the sound-complex the same process fulfils itself once more; sound-complexes themselves are at bottom only marks for our attention and signs for a certain order of characteristics. In this pure description we have no need of the "projection theory," etc. Avenarius never says: "The content of my perception is there in space, where I see it, 100 paces in front of me". How indeed can one say "I see my perception"? The content of a statement, *e.g.*, "red," is never in space; what is in space is the R-value, which is characterised for the individual by the E-value "red". The individual characterises the R-value always by some one aspect (whenever it actually conditions change in his system C), either by "red," or "hard," or "real," or "thing," etc. For all these characterisations we need no "projection," because nothing at all is projected. The brain-process remains the brain-process, and the external condition of change remains the condition of change; no projection is connected with the description and naming of the two and their relation.

Concerning the last writing of Avenarius, *Der menschliche Weltbegriff* (Lpz., 1891), I may be allowed to quote a few words from an essay published by a pupil of Avenarius, Mrs. D. Josepha Kodis, Ph.D., in the *Psychological Review*, vol. iii., 6, p. 609.

"An especially new point in this paper is the theory of 'Introjection,' by which Avenarius explains the growth and formation of the theory that a fundamental difference exists between the 'inner' and 'outer' experiences. Avenarius does not find in these two kinds of experience any 'incomparability' or any 'fundamental dualism'. The idea of their essential difference has been derived, according to his opinion, from a kind of false materialism, which believed in the enclosure of the soul in the body or in a part of it,

and, later, in the enclosure of the faculties of the soul in the soul's substance. From this belief sprang the notion that the soul was something enclosed from the 'outer world,' into which enclosure every impression from without could come only through a putting-in, or 'introjection'. The whole modern psychology, psycho-physics and most of philosophical theories contain such opinions, and therefore serve to strengthen the artificial wall between the inner and outer experiences which makes the sciences of the 'inner world' always more inaccessible to exact methods of investigation, and consequently more sterile."

The Philosophy of Avenarius attracts more and more attention from thinkers who are striving for new views, and it gains ground steadily. England still holds aloof from it, and this is to some extent strange, since it is in England that we find the origin of the Association Psychology and of a Common-Sense Philosophy; it is true that taken as wholes neither of these has anything to do with Empiriocriticism, but in detail they would find many of their propositions in Empiriocriticism. It must not indeed be concealed that the difficulties of penetrating into Avenarius' works are very serious, chiefly because of the entirely new terminology introduced by him.

To those who would make themselves acquainted with Empiriocriticism, my *Einführung in die Kritik der reinen Erfahrung* may perhaps be of use. For other literature about Avenarius I may draw attention to my "Nachruf" in the *Vierteljahrsschrift für wissenschaftliche Philosophie*, Jahrg. xx. Heft 4, p. 386 seq. Quite recently there have been added to these studies two articles by W. Wundt: "Ueber naiven und kritischen Realismus," II., "Der Empiriokriticismus" (*Philosophische Studien*, vol. xiii., pp. 1-105 and pp. 323-433). The answer to these will soon appear in the *Vierteljahrsschrift für wissenschaftliche Philosophie*.

To those philosophical inquirers of to-day who wish to attain new views, to come forth from the treadmill of former ways of thought, to be freed from the work of the Danaides, the eternal carrying of water in a sieve, to these Empiriocriticism offers a most encouraging inducement, even if they do not agree (or do not yet agree) with the particular details of Empiriocriticism, or if they should at first draw back alarmed by the new, unfamiliar and difficult terminology. With reference to this point I may close this sketch with the consoling words of *Ernst Mach*:¹ "It is from the new, the unfamiliar, the uncomprehended, that all stimulus to inquiry proceeds".

¹ E. Mach, *Die Prinzipien der Wärmelehre*, p. 367. Leipzig, 1896.