



Steiner and Natural Science*

Max von Laue
Translated by Peter King

I.

In his book *Vom Lebenswerk Rudolf Steiners* (The Lifework of Rudolf Steiner)¹ Professor Hans Wohlbold publishes an eponymous article that makes serious accusations against present-day natural science, which he deems responsible for the current world crisis and related spiritual and material misery. Steiner sees the only means of salvation being the 'spiritualization' of natural science.

Let us look at Wohlbold's reproaches more closely:

Modern life and thought are totally saturated with the outcomes and impulses of natural science. What is swimming on the surface is that which one gladly celebrates as the great achievement of the time and has affected all

areas of practical life in technical science. Behind it stands that which irradiates our whole spiritual life like no other thought trend, the so-called *Weltanschauung* of natural science.

Present-day man thinks scientifically. Even if there is only one person who has kept far away from scientific life, even if that one person may never have heard anything of the *Weltanschauung* of natural science – nonetheless, that one thinks in the spirit of Newton and Häckel, of Helmholtz and Ostwald. For decades, through countless canals, the impulses that have been the given ways of scientific thought of its important champions have streamed out into life, and work there, everywhere, forming and shaping. We thank science for all that is great in our outer life, and, at the same time, we can thank it for all the spiritual and physical misery of the last years.

Humanity is reduced to misery by natural science, as soon as it struggles over external existence into an inner life [...]

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¹ *Vom Lebenswerk Rudolf Steiners* (Munich: Chr. Kaiser, second edition, 1921).

Thus far Wohlbald. It is correct that the influence of technical science on the course of world history — an influence that has never been absent — has made its presence known since the end of the eighteenth century. No historian of the future will be able to understand the history of this epoch without taking into consideration the development of technical science. Equally, it must be granted that this development would not have been possible without previously unsuspected advances in natural science. But are the natural sciences therefore responsible for the course of history or are they responsible only in part? Do the *driving forces* that determine the fates of people stem from them? Is it on the whole thinkable that a science — a pure system of cognition — sets ends for a human's actions and passions, to say nothing of those of all other humans?

Professor Wohlbald answers yes to these questions and he sees the knotting together of natural science and the actions and passions of humans in (and under the dominance of) a '*Weltanschauung* of natural science'. Is this anything like what has happened and is happening? It is self-evident that the ways of thinking of present-day man have been influenced by the outcomes of natural science. Schools and other educational institutions, the daily press, and even more so the unflinching, unavoidable spectacle of great technical achievements convey so much about it to man that it is impossible for him to ignore this powerful impression.

But all that still lies beyond good and evil. Only when the desire to seize on these achievements for oneself is astir, and when this desire exceeds the boundaries of what is legitimate, when, goaded by the new possibilities of gratification, mania for pleasure or hunger for power stifles the better inclinations of the soul; only then are manifested the bad consequences that Wohlbald — not without eloquence — has delineated. Thus the *Weltanschauung* that has brought humanity to its present-day disaster is not scientific, but materialistic. To take only one example, how could it be the fault of the explorers of electromagnetism; Ørsted, Ampère, Faraday and Weber, that the electric telegraph has become today the major implement for the world's lies? On account of this consequence —

hard for them to foresee — should they have discontinued their work?

But for a special reason Professor Wohlbald regards the rise of the materialistic attitude as a necessary consequence — and therefore as a fault — of natural science. He continues:

Past generations found matter of and for the soul in an ecclesiastical religious life. That has been destroyed by natural science. It negates the necessity of faith and postulates knowledge [...] Natural science has totally despiritualized the world, and thereby Europe today is a heap of ruins and humanity bleeds to death. But just as they had enthroned religion, they must now put something else in its place, a knowledge of the spirit founded on their own principles [...]

This is, again, a half-truth. The churches that arose in history may lay claim to the glory of imbuing countless people through the centuries with an ideal moral conviction that made their lives worth living. Today, they have almost totally lost this influence over the masses. Indeed, this decline has been connected with the advances of natural science, the outcomes of which have contradicted on more than one occasion the teachings of the churches. Here we do not wish to enter into details but we must declare that it is no longer possible for present-day man, so far as he possesses a spark of truthfulness, to preserve such a touching, childlike faith as that from which our ancestors drew their moral strength.

But can one fault natural science for this change? Has not the fault more to do with the inability of the churches to separate the specifically religious content of their teachings from the mythological elements that purport to reveal and clarify all kinds of things about the course of the world in nature and human history? For it is only to [that *purported* revelation and clarification] that scientific knowledge is opposed: this opposition was bound to happen because science, and only science, is duly qualified in these things.

Here science has won in the consciousness of the great human majority. But because of the past knotting together of the religious and the mythological — which even until now, to the misfortune of humanity, no church has been able to untie — the

religious also has fallen into discredit in the consciousness of the masses, from whom one can not, in all fairness, expect any fine discrimination in these matters. Because religious need, the need for redemption, plainly cannot be suppressed, that great void — that lack of matter for and of the soul — has arisen, which Wohlbold has justifiably described as the root of the evil from which the peoples of today suffer.

Things are not so bad for one well-educated in philosophy. For him, the philosophy of Kant has established the line that delimits the scope of knowledge in the natural sciences. He knows that there is space beyond this boundary for religion as there is for many other things. Of course for him there remains an unquiet longing. He must renounce, just as Schiller does in the distich:

Welche Religion ich bekenne? Keine von allen.
Die Du mir nennst. "Und warum keine?" Aus Religion.

[Which religion do I profess? None of all you name to me. 'And why none?' Because I am religious.]

If one really wants to get at a science there is, in truth, only one way: one must state the outcomes of that science to be false if it happens that one is able to trace the source of an error to its foundations or the methods followed. Nothing of this is present in Wohlbold² or Steiner. They often characterize the goals of natural science as inadequate; they query it — with questions it is unable to reply to — without, however, any reflection on whether these questions apply in the province of natural science. But they never attempt to refute any of its acknowledged outcomes. And that relieves us from the labour of having to prove any special scientific outcomes in what follows. We do not need to defend them here because they are not assailed here; and if the reader wishes to make a more thorough study of them he may stick to the textbooks or like presentations.

Let us recapitulate. Steiner and his disciples do not object to the content of the natural sciences but to what they see as that which the sciences have produced: the hegemony of a special *Weltanschauung*.

They forget to inquire if this *Weltanschauung* is bound up perforce with natural science. In fact this connection might be extremely tenuous. One is able to understand from the interplay of many factors psychologically how a materialistic *Weltanschauung* expanded in coincidence with the advance of natural science. But one mistakes the character of science in its very essence if one believes that science was ever the driving force behind this development.

II.

In this essay we defend the natural sciences. Unfortunately we cannot similarly defend all natural scientists for the reason that many of them — even among the most recognized — are guilty of making the same crossing of borders as that made in the teachings of the churches. They are searching for a *Weltanschauung* that is a unity: they have founded one on natural science, and are now preaching a monism that embraces the religious sphere. They then stake this dogma upon the shortcomings in church dogma, to compound and confound the utterly different, and, further, upon a religious insipidity and a prosaism that in fact leaves the soul empty and cold. This monism is an excrescence, and we note that the number of true natural scientists among its disciples is only a fraction. The monism has nothing to do with science itself.

Rudolf Steiner seeks the salvation of humanity in another monism. He wants to reform the entire concept of the natural sciences as to contribute more to the human's inner life; he wants to transform it into a science of the spirit that, at the same time, embraces religion. According to Wohlbold, he effects:

[...]he synthesis of the two spheres in such a way that he grasps the religious concepts as being concrete in conscious experience, and then carries these [the concretized concepts] into sensual existence, and in this he demonstrates how this [sensual existence] manifests itself out of the spiritual primal ground, and also in this, on the other hand, he

² The only exception to this may be found in Wohlbold, p.138: 'Modern science has a special predilection for the law of the conservation of energy, or, rather, what it has made out of this law. But, strange to say, it forgets to give an account of this, so that it always infringes this fundamental law in a somewhat gross manner. In science there is always something coming out of nothing, just as soon as it allows things to increase, to increase qualitatively, but for science there is no possibility that the "plus function" it has come across has a foundation anywhere'. What the expression 'qualitative increase of a thing' together with that 'something coming out of nothing' have to do with the crisply mathematically defined concept of energy is incomprehensible. We cite this passage as evidence of just how far the representations of Steiner are from the conceptual rigour that made science into science.

seeks and finds the spiritual primal ground in sensuous being. For him, science and religion together flow into a unity.

It is not our task to inquire how this forced marriage befell religion. Only what emerges as a kind of natural science will occupy us. And inasmuch as the author of these lines is a physicist by profession, he should occupy himself more with Steiner's assertions about inanimate nature than with his biological conjectures.

III.

According to Wohlbald, Steiner's reflections — as far as they are ostensibly scientific — follow Goethe. The antipathy that Goethe — in accordance with his totally poetic disposition — had to have against the method of physics by which nature is made comprehensible through abstract concepts is well-known and above all has been masterfully delineated by Helmholtz in a famous lecture.³ Goethe compared nature to a hermetic work of art that here or there reveals its content to a receptive observer. He thinks to find the immediate expression of the 'Idea' in reality. We do not want to renew an old conflict that was cleared up long ago. What Goethe had in common with scientific physics was that his starting-point was the observation of nature. What severs him from physics is the way he approached such observations and equally the conclusions he drew. Nevertheless, as a result of this sound foundation (the observation of nature) he was able to succeed in other, more descriptive parts of natural science — a recognized great achievement.

What then is the foundation for Steiner's dicta, including those that touch on natural science? By means of a spiritual preparation, a human may develop inside himself special organs for inner observation. The 'esoteric' or 'spiritual' science will then be revealed to him. This is not so easy, but is achieved by going through several stages of initiation. Whoever has advanced through these is forbidden to communicate what he perceives to anyone who has not been as deeply initiated. In that we do not have the distinction of belonging to the illuminati of that light, our knowledge of the scientific outcomes of the esoteric science is of course somewhat fragmentary. We have no choice but to

follow what is hinted at in Steiner's writings, and through these we will have to undertake a few strange manoeuvres.

An example is Steiner's text *Unsere atlantische Vorfahren* (Our Atlantean ancestors). He writes that for the million years up to 10,000 BC in those parts of the world that now constitute the bottom of the Atlantic Ocean there existed an absolutely unique culture of people that in body and soul thoroughly differed from humans today. These people had aircraft which they flew close to the ground (pp.15-16). Of course these aircraft would be totally useless now. In those days the air was much thicker, the water was much thinner; it moved more artistically and let itself be guided, etc...

The fact is that geological and paleontological research into plant and animal remains that go back more than 12,000 years has demonstrated that, leaving out negligible and local deviations, the earth's atmosphere essentially has not changed in temperature, air pressure, or chemical composition. In light of these particular circumstances, the water that is so much thinner (should this be 'specifically lighter?') can only provoke a smile. But in the same place in the text, Steiner remarks: 'Science and logic by their nature are never able to decide anything about this, what is possible or impossible [...Maybe] they have to account for that which is ascertained by experience and observation'.

Even if one wanted to concede the first sentence as it stands, unqualified (we are on careful guard not to), one would do better to select science over the 'occult observations' of the 'esoteric scientists' as a body of illustrative data. This body of data is such that, from distant times, the earth itself has had in its keeping: there is no lack of documentation. Steiner must feel a warm glow of self-satisfaction; a smugness, derived from his astute caution and discretion in transferring this entire culture to a now submerged part of the earth (in another text the floor of the present Indian Ocean plays the rôle). He is fairly safe from excavations in these places. Unfortunately geologists have credibly asserted that 12,000 years ago nothing like a separate continent between Europe and America could have existed. But perhaps we are dealing here with one of those errors the possibility of which Steiner himself allows for in

³ Hermann von Helmholtz, *Vorträge und Reden* (Braunschweig: Friedr. Vieweg & Sohn, fourth edition, 1896), vol. 1, p.53.

his 'esoteric science'. We recommend that he once more trains his capacity for knowledge to his assigning of time, where he will discover that the supposed Atlanteans were thought to have lived in a much much earlier time.

We continue reading and come to Steiner's book *Die Geheimwissenschaft im Umriss* (An outline of esoteric science, Leipzig, 1920). The first fifty pages analyse the human constitution into seven parts: the physical; the etheric body; the astral body; the ego, the 'spirit itself'; the 'life-spirit'; and the 'spiritual man'. These all interact in the most complicated ways. The conscientious author obviously feels that a justification of his constant employment of the figure seven is required. Lovers of unconscious humour are recommended to make a study of pages 53-55 of the text. Here we only draw attention to two sentences:

In the same way that light appears in seven colours, and sound appears in seven tones, the undivided nature of Man appears in the seven limbs. The sevenfold nature of sound and colour has nothing to do with superstition, and the sevenfold composition of Man is not tainted with it either.

What prevarication! From the innumerable colours that can be perceived by the eye, human language has perhaps given especially simple names to a random seven (and these are only approximately defined), and if Steiner is ignorant of the names of any other colours we recommend that he asks any good dressmaker. That our European music is founded upon another seven — the seven notes of the octave in major and minor scales — is a fortuitously-selected means of composition. Other periods and other peoples employ (and have employed) other gamuts, just as at times in European music the chromatic scale of twelve notes can be found.

But of course for Steiner the difference between naming and knowing is unclear. His psychic organ of cognition amply provides him with names — his terminology for the seven parts of Man is only a poor example of the amplitude of his gift. But why is this? 'Where concepts are lacking, a word straightaway suggests itself' as our friend Mephistopheles has answered all along.

Let us pass on to page 146 *et seq.* in this text. After a discussion of the past of our planet that includes, among other things, the 'Saturn period', Steiner continues with:

If, for the present, one does not concentrate the intellectual perceptive organs on the beginning and the end but instead on the more intermediate manifestation of the Saturn period, one is able to recognize that the essential matter prevailing throughout that period was heat alone. Nothing gaseous, liquid, or solid is to be found. All these conditions made their first appearance in later periods. One is able to suppose that a human being might approach this Saturn period as an observer. In drawing near, not a single sense impression with which the being is endowed would apply, apart from the perception of heat. Let us suppose that this being comes close to this Saturn. When the being arrived in that area of space under the influence of Saturn it would notice that this area had a condition of heat different to those of all other surrounding areas. The being, however, would not find the area to be uniform in heat, but warmer and colder regions would alternate. Radiant heat would be perceived to follow certain fixed lines. And these lines are not only straight: because of the variations in heat irregular forms are developed. One has something before one like a self-organizing, visibly transforming world-essence, comprised in heat alone.

Further:

'For him,' to wit the observing spiritual scientist, this heat possesses the same concrete meaning as do gaseity, liquidity, and solidity. To him it is a finer substance than a gas.

And a gas is nothing other than condensed heat, in the same sense that a liquid is condensed vapour, and a solid is condensed liquid.

And so it goes on. If this had been written a hundred years ago, in the light of the condition of physics at that time, one could have possibly taken it as just a fanciful possibility. But since then have lived men such as Joule, Robert Mayer, and

Helmholtz; and it is no longer just a part of the teachings of physics but common knowledge that heat is not matter but a form of energy. Seemingly, even Steiner seems to know something about this for he writes: 'In the world as interpreted by physics, heat definitely presents itself as one condition of the solid, the liquid, and the gaseous; but this condition is only its exterior or its action. The physicists speak only of this action, not of heat's inner nature ...' And is there evidence for this? 'It is only necessary to concede that there exists a kind of psychic perception if one wants to follow the scientist of the spirit'. And yet again (*Vorurteile aus vermeintlicher Wissenschaft* (Prejudices of Pretended Science, Berlin 1920, pp.29-30):

And what is more it must be said that the scientist of the spirit can do no better than painstakingly to get rid of all logical conclusions from his findings in natural science; for it is in the drawing of such logical conclusions that the ingenuous inner meanings and workings of spiritual research will easily make him subject to error.

In our opinion the Witch in *Faust* says the same thing, only better:

*Die Hohe Kraft
Der Wissenschaft,
Der ganze Welt verborgen!
Und wer nicht denkt,
Dem wird sie geschenkt,
Er hat sie ohne Sorgen.*
[The high power
of science,
latent in the whole world!
And he who does not think,
to him will it be given,
he possesses it without cares.]

The reader perhaps will recall the words in which Faust breaks in on this — and will then know Goethe's opinion of an occultism of the kind advanced by Steiner.*

From Steiner's writings we could still cite many passages of a similar character. Yet the Witch's multiplication table is only endurable because it is so brief. Nevertheless we shall follow a good custom and leave the last word to the accused. We

quote therefore from *Unsere atlantischen Vorfahren* (p.5), and take care not to add anything.

One could easily form an impression of a non-initiate, who has not yet been able to satisfy himself of the reality of a special spirit-world through his own experiences, that he is a fantast, if not something even worse.

* *Was sagt sie uns für Unsinn vor?
Es wird mir gleich der Kopf zerbrechen.
Mich dünkt, ich hör ein ganzes Chor
Von hunderttausend Narren sprechen.*
[What madness is she reciting to us?
It will straightaway break my head.
It seems I hear speaking an entire chorus
of a hundred thousand fools.]

Faust, der Tragödie erster Teil, Hexenküche, II. 2573-2576.