

## Reading Schopenhauer in the light of present-day science

by Georges Teutsch (*Saint Baldoph*)

Every reader of Schopenhauer's work knows the importance he gave to the scientific discoveries of his time, and this largely owing to his very broad scientific education. Before devoting himself completely to philosophy the young Arthur studied comparative anatomy, physiology, natural history, zoology, mineralogy, physics, chemistry and astronomy. Later he followed very closely the developments of the sciences and particularly of medicine. One can only be impressed by the extent of his knowledge. Everybody knows that, at the instigation of Goethe, he studied vision and colours; even nowadays his text on this topic has not lost all of its interest. The references to science, particularly numerous in *On the Will in Nature*, as it is devoted to the "scientific proofs" of the relevance of his metaphysics, are also present throughout *The world as Will and Representation* as well as in the *Parerga and Paralipomena*.

Schopenhauer's philosophy has only one aim: to tell what the world is. This is also the goal of the sciences, though they are restricted to causal relations between phenomena. From this point of view, as clearly expressed by our author, it is impossible to go back to a first cause (*causa prima*)! And for this reason, the "unexplained residue" proper to any science:

[...] science [...] can never reach a final goal, or give an entirely satisfactory explanation. It never aims at the innermost nature of the world; it can never get beyond the representation; on the contrary, it really tells us nothing more than the relation of one representation to another.<sup>1</sup>

The metaphysics of Schopenhauer tries to tell what the world is through the idea of the unfolding of the "thing in itself", under the aspect of the omnipresent Will, in the phenomena: "[...] it proceeds from the appearance to what is appearing, to what is hidden behind the appearance, and thus to what is beyond physics."<sup>2</sup> It follows that if the hypothesis of the Will as the motor of the world and as a key to the riddle of the world is valid, it should be able to account for all present and future results of the sciences. Schopenhauer was so convinced of it

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1 W I, ZA, 59 (WWR I, 28).

2 P II, ZA, 26.

that he tried by all means to validate his metaphysical option by the most recent results of the science of his time, sometimes quite naïvely as in his acceptance of spontaneous generation. We will try to see what the situation is 150 years after his death.

My aim here is to allude to the premonitory echoes of present-day sciences which I perceive in the two aspects of Schopenhauer's philosophy: the Will and the representation – and, at first, the Will.

### *The “theory of everything”*

The first, very general, analogy between Schopenhauer's metaphysics and present-day physics relates to the “theory of everything”. With his concept of the Will as the only motor of the world didn't he prefigure the contemporary quest for the unification of the four fundamental forces of physics? This idea is supported by the fact that for him basic natural forces (gravitation, electromagnetism, etc.) are the prime expressions of the Will in the phenomenal world. One could argue that it is a natural tendency of the human mind to imagine a unique cause such as God among many others. It can also be said that this scientific quest for a theory of everything has already a metaphysical flavour. Whatsoever, this basic unity of nature begins to be recognized in several scientific domains which I am going to mention first: evolution, sexuality and astro-physics.

### *Life and evolution*

Contemporary science, and particularly cosmology, has become aware of the unity of the evolutionary process which starts with the Big Bang and proceeds to the unfolding of life and intelligence. If physics has been, so far, unable to define a single force which produces our world in its infinite diversity, it is aware of its four aspects: strong and weak interactions, electromagnetic force and gravitational interactions. This is what Schopenhauer summarizes under the expression “the Will in its lowest degree of objectification”. Whether the evolution is the result of an “intelligent design” or not is becoming a subject for a metaphysical debate among some scientists. An “anthropic principle” to which I will come back in a moment has been a main focus of these debates.

As for the emergence of life out of the inanimate world Schopenhauer considers that life is organic by nature and is characterized by “a constant change of matter under a fixed permanence of form”<sup>3</sup>, an idea which can be related to the present-day view that the unfolding of complexity necessary for the appearance

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3 W I, ZA, 350 (WWR I, 277).

of new properties (and life in particular) is only possible in systems evolving far from equilibrium.<sup>4,5</sup>

This being said, we can now proceed to the evolution in the living world.

Long before the publication of Darwin's book on *The origin of species* Schopenhauer had developed a wide view of evolution proceeding from the mineral world to plant and animal kingdoms via a process of growing complexity in which every step rests on the preceding step. He even described this evolution as "variations on the same ungiven theme"<sup>6</sup>, a view which may be supported by the latest developments of genetics: all living organisms, whether in the plant or animal realms, are now considered as variations around a single initial structure of the genetic material. This would explain some of the features which are present in all living systems such as the structuring into axial and antero-posterior segments which correspond to the famous "hox" or homeotic genes.

Now, if we consider the mechanisms of evolution such as presented first by Lamarck and later by Darwin, they were immediately rejected by Schopenhauer because of their purely physical or phenomenal explanation. Indeed, our philosopher was convinced that evolution has its origin outside of time and space via platonic prototypes. This is, curiously, one of the hypotheses developed by two contemporary scientists: Michael Denton and D'Arcy Thompson.<sup>7</sup> Another one, Rémy Chauvin, even ended up with a Schopenhauer-like description of the "force" which orients evolution: "The general direction of the process looks like a diffuse *will* in all beings, plants and animals [...]."<sup>8</sup> Schopenhauer would be delighted! In scientifically more acceptable terms these archetypes may be identified with the "strange attractors" which have been found in studies on chaotic systems<sup>9</sup>.

But this "Will" seems also to be at work for the preservation of species. In his "Metaphysics of sexual love" Schopenhauer anticipated many of the results of present-day science. Indeed some excerpts of the book *How do we fall in love?*<sup>10</sup> by the biologist Lucy Vincent may be directly superimposed on Schopenhauer's propositions. I record only a few of them: she mentions the triple aspect of sexual desire as found by Helen Fisher and her group: undifferentiated sexual drive (*libido*), desire for a particular person, establishment of a long term relationship.<sup>11</sup> Further on she writes:

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4 Capra, Fritjof: *La toile de la vie*. Editions du Rocher 2003, 189, referring to Ilya Prigogine and his theory of life as "dissipative structure".

5 Staune, Jean: *Notre existence a-t-elle un sens?* Presses de la Renaissance, Paris 2007, 247.

6 W I, ZA, 206, 280 (WWR I, 154, 220).

7 Staune, Jean: *op. cit.*, 329, 453–454.

8 *Ibid.*, 248.

9 Capra, Fritjof: *op. cit.* 150–154.

10 Vincent, Lucy: *Comment devient-on amoureux?* Odile Jacob, Paris 2004.

11 *Ibid.*, 16.

Evolution has designed the human body to be the most efficient in two primordial domains: survival and reproduction. Our body and the brain which directs it are therefore constructed to lead us to intercourse.<sup>12</sup>

And also:

The criteria for attraction according to which one will find somebody terrific or ugly are the result of an evolutionary selection of clues which signal the quality of the protagonist's genome.<sup>13</sup>

It has indeed been shown that sexual attraction is related to differences in the major histocompatibility complex of the protagonists. The more these are different, and thus complementary, the stronger the mutual attraction.<sup>14</sup> The biologist also stresses the importance given by men to signs of youth and the ratio waist/hips.<sup>15</sup>

If we now turn to Schopenhauer, the three aspects of sexual love, mentioned above, are clearly present in the "Metaphysics of sexual love". In relation with the genetic aspects he writes:

[...] and this longing receives its fulfilment in the child they produce. In the child the qualities transmitted by both parents continue to live, fused and united in one being.<sup>16</sup>

Further:

[...] [this] careful selection [...] evidently refers not to the chooser himself, although he imagines it does so, but to the true end and purpose, namely that which is to be produced; for this is to receive the type of the species as purely and correctly as possible.<sup>17</sup>

And also:

Primarily and essentially, the amorous inclination is directed to health, strength and beauty, and consequently to youth as well, since the will strives first of all to exhibit the specific character of the human species as the basis of all individuality.<sup>18</sup>

It would be possible to extend much more this comparison, which could constitute a research project *per se*. But, to make it short: Lucy Vincent, like Schopenhauer but without ever mentioning him, considers the sexual instinct as a trick (or a trap) established by nature for the preservation of species.

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12 Ibid., 15.

13 Ibid., 18.

14 Ibid., 30–31.

15 Ibid., 37.

16 W II, ZA, 627 (WWR II, 536).

17 W II, ZA, 630 (WWR II, 539).

18 W II, ZA, 628 (WWR II, 537).

According to Schopenhauer, this Will which expresses itself under a higher form of objectification in the preservation of species, manifests itself in one of its most primitive forms as gravitational force.

#### *Gravitational force*

In *The World as Will and Representation* the author depicts gravity as

[...] the simplest of all natural phenomena [...] which does not cease to strive and press towards an extensionless central point whose attainment would be the annihilation of itself and of matter; it would not cease, even if the whole universe were already rolled into a ball.<sup>19</sup>

According to him, gravity will find its only limit in an antagonistic force such as “impenetrability (in the form of) rigidity or elasticity.”<sup>20</sup> Today we know that matter, indeed, is constituted largely of vacuum and that it is because of antagonistic forces that it does not collapse onto itself: electronic, nuclear and intranuclear forces. As an example, in white dwarfs, these super-dense stars which result from the explosion of stars like our sun, the mean density is around 500 kg/cm<sup>3</sup> and can reach 16 tons/cm<sup>3</sup> at the centre. And this is only due to the decrease of electronic forces. A further step is achieved in neutron stars, in which there are practically no more electrons; their density may reach 500 million tons/cm<sup>3</sup>. They were predicted in 1935 but we had to wait until 1967 in order to detect one as a pulsar. But we have not finished yet: after the explosion of a star of more than 8 solar masses the evolution can generate a black hole. In this situation the whole mass of the stellar nucleus is concentrated in a very small volume of infinite density. What, in the intuitive vision of Schopenhauer, appeared as completely crazy not so long ago, looks at present as an incredible premonition. And not to speak of the big bang!

Beyond this basic unity of nature which seems to reveal itself in the scientific studies I mentioned, there is the other aspect of Schopenhauer’s philosophy: the world as representation or transcendental idealism. Whether Einstein’s interest for space and time could have been inspired by Schopenhauer, is a matter of pure speculation on which I would like to say a few words.

#### *Schopenhauer and Einstein*

Albert Einstein, the father of the theories of relativity, was an enthusiastic reader of Schopenhauer. In his published thoughts *The world as I see it*<sup>21</sup> he mentions “the data of the cosmos which the marvellous texts of Schopenhauer helped us

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19 W I, ZA, 386–387 (WWR I, 308).

20 W I, ZA, 217 (WWR I, 164).

21 First published in German under the title: *Mein Weltbild. Wie Ich die Welt sehe.*

to unveil”.<sup>22</sup> Fine! But does it prove any relation, whatsoever, between the theories developed by Einstein and the “pre-scientific” intuition of our philosopher? Quite objectively it would be easy to demonstrate that the unfolding of Einstein’s thought started from well identifiable scientific considerations which have nothing to do with *The World as Will and Representation*. However we cannot exclude that this philosophy could have been a source of inspiration for the scientist in a very general way, even unconsciously, for the orientation of his working themes. Let me just recall that Einstein’s main contributions deal with space-time and the status of matter ( $E=mc^2$ ), two topics also discussed by Schopenhauer. Not only did our philosopher express the belief that space and time are connected, but also that matter is energy:

Now time and space, the latter in all its three dimensions, are *continua*, i. e., all their parts are originally not separated but combined.<sup>23</sup>

For the understanding unites space and time in the representation of matter, that is to say, effectiveness.<sup>24</sup>

This “effectiveness” (*Wirksamkeit*) of matter is equated by Schopenhauer with *energeia*, that is reality (*Wirklichkeit*).<sup>25</sup>

Whether Schopenhauer’s thoughts on space, time and their union had been a stimulant for Einstein will certainly remain as a mystery. As for us, when we see the Andromeda galaxy through a telescope as it was over 2 million years ago, we are reminded of Schopenhauer’s intuition: what we see is indeed space-time.

But more convincing evidence for “the world as representation” comes from quantum physics, a branch of physics totally unknown in the nineteenth century. Interestingly, it is physics which Schopenhauer considered as a minor science (as it manifests the lower degrees of objectification of the Will) which will afford the most spectacular and the most undeniable proof of our subjective perception of the world.

### *Quantum physics*

According to Schopenhauer there can be no object independently of a perceiving subject. As he expresses it so briefly and yet so inspiringly in the first page of his great opus:

It then becomes clear and certain to him (man) that he does not know a sun and an earth; but only an eye that sees a sun, a hand that feels an earth; that the world

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22 Einstein, Albert: *Comment je vois le monde*. Flammarion, coll. « Champs » Paris 1990, 18.

23 W I, ZA, 549 (WWR I, 447).

24 W I, ZA, 39 (WWR I, 12).

25 W II, ZA, 57 (WWR II, 45).

around him is there only as a representation, in other words only in reference to something else, that which represents, and this is himself.<sup>26</sup>

The first confirmation of this idea came precisely from quantum mechanics. The “uncertainty principle” of Heisenberg stipulates that there is a dependency between the observed particle and the experimental setup which is used for the observation. One cannot determine simultaneously the position and the speed of a particle for the simple reason that the “detecting” particle will “disturb” the particle to be observed at the moment of their interaction. Beyond this first simple rationalization of the “uncertainty principle” specific experiments with the “Young interferometer” led even to the concept that a particle becomes “real” only after it had been detected by an experimental setup. Numerous experiments dealing with this “non locality”, including the famous experiment of Alain Aspect and co-workers on polarization-entangled photon pairs, strengthen this viewpoint.<sup>27</sup> Before being detected by the experimental setup, corresponding to the reduction of its wave function, a particle is considered to be everywhere in space. An alternative interpretation of this result would be to consider that space does not pre-exist but appears simultaneously with the particle. A similar conclusion with respect to time may be drawn from experiments on the “delayed choice quantum eraser”<sup>28,29</sup> which may even be seen as an evidence for the breakdown of causality at the quantum level. This brings us back to the view of Kant and Schopenhauer which states that space and time are merely modalities of our cognition capability, and not pre-existing realities.

One becomes aware of the fact that quantum physics, beyond its purely practical applications, has enduringly overthrown the previous beliefs of the scientific community on cognition itself. And finally neuroscience is taking the relay.

### *Neurosciences*

Fritjof Capra, in his book *The web of life*<sup>30</sup>, mentions the results obtained by Humberto Maturana and Francisco Varela in their research on cognition. They write: “Cognition is not the representation of an independently existing world, but rather the continuous arising of a world through the process of life.”<sup>31</sup> And

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26 W I, ZA, 29 (WWR I, 3).

27 Staune, Jean: *op. cit.*, 67–68.

28 Scully, Marlan O. et al.: Delayed choice quantum eraser. In: *Physical Review Letters*, 84, (2000), 1–5.

29 Roch, Jean-François et al.: Experimental realization of Wheeler’s delayed choice Gedanken experiment. In: *Science* 315 (2007), 966–968.

30 Capra, Fritjof: *The web of life*. Anchor Books, Doubleday 1996.

31 Freely translated from the french version: *La toile de la vie*, 2003, 294.

further Capra comments: “[...] they do not assert that nothing exists, they say that nothing exists independently of the cognition process.”<sup>32</sup> Quoting Varela:

We have to question the idea that the world pre-exists and that cognition is a representation. For the cognitive sciences this means that we have to question the idea that the information already exists in the world and is extracted by a cognitive system.<sup>33</sup>

And finally:

We have to understand perception as the permanent creation of new relations within the neural network. The activity of the neural cells does not reflect an environment which would be independent of the living organism, and consequently does not allow the construction of an outside world with an absolute existence.<sup>34</sup>

This is essentially what Schopenhauer wrote already in 1813 in *On the fourfold root of the principle of sufficient reason* and what he developed thoroughly in his main opus. And he already understood and claimed the role of the brain in the elaboration of the representation.

The primeval role of the cognitive process in our perception of the world, now quite firmly established, I cannot conclude without mentioning the elegant solution Schopenhauer gave to the enigma of the “anthropic principle”.

#### *The “anthropic principle”*

The “anthropic principle” is the great affair which divides modern cosmology<sup>35</sup>. This principle, first expressed by the physicist Brandon Carter, may be understood in a weak or a strong sense. In the first instance the coincidences which seem to prevail in the presence of man in the universe are merely seen as factual, as we are here to become conscious of this universe. Schopenhauer would say that it could not be differently: no object without subject!

The “strong” interpretation however insists on the highly unlikely hyperfine tuning of various physical parameters like the cosmological constant and the coupling constants of the weak and electromagnetic interactions, without which life could not have appeared in the universe.

This led some scientists to regress to the ancient idea of the “great clock-maker” or the “intelligent design” of which Schopenhauer made great fun.<sup>36</sup> Interestingly Schopenhauer, following *inter alia* Hume and Spinoza, anticipated

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32 Ibid., 298.

33 Ibid., 299.

34 Ibid., 113.

35 Staune, Jean: *op. cit.*, 158–165.

36 W II, ZA, 396 (WWR II, 338).



this problem which he categorises as “anthropo-teleology”<sup>37</sup> and solved it in a way our “anthropists” would be well inspired to meditate:

The astonished admiration that usually seizes us when we contemplate the endless appropriateness in the structure of organic beings, rests at bottom on the certainly natural yet false assumption that that *agreement or harmony* of the parts with one another, with the whole of the organism, and with its aims in the external world, as we comprehend and judge it by means of *knowledge*, and thus on the path of the *representation*, has also come into being on the same path; hence that, as it exists *for* the intellect, it was also brought about *through* the intellect.<sup>38</sup>

This is further repeated in a slightly different way:

It is our intellect which first produces the plurality and variety of the parts and their functions, and is then struck with amazement at their perfect agreement and conspiracy that result from the original unity; here, then, in a sense, it admires its own work.<sup>39</sup>

And a final quotation for the “anthropists”:

But the intellect, as the condition of every object, and thus of the entire manifestation, is totally ignored by materialism.<sup>40</sup>

### Conclusion

At the close of this overview of the possible coincidences between Schopenhauer’s philosophy, in both of its aspects (will and representation), and results of present-day science, we may ask the question about the relevance of a validation of metaphysics by science. This topic has again become popular with numerous books, among which those of Fritjof Capra, Trinh Xuan Thuan and Jean Staune. The latter author even calls for a new discipline which he proposes to entitle “Metaphysical implications of contemporary science”. Obviously he does not seem to be aware of Schopenhauer’s work nearly two centuries ago. The same is true for some of the authors he quotes, namely Bernard d’Espagnat and Dominique Laplane who respectively rediscover that “the metaphysics of the object is no longer valid”<sup>41</sup> and that “the opposition between materialism and spiritualism has to be abolished”<sup>42</sup>. For Schopenhauer, science and metaphysics are two independent approaches in trying to say what the world is. He illustrates his view by the famous allegory of the two mine workers who dig their tunnels towards each

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37 Ibid., 400 (WWR II, 341).

38 Ibid., 383 (WWR II, 327).

39 Ibid., 384 (WWR II, 328).

40 Ibid., 368 (WWR II, 314).

41 Staune, Jean: *op. cit.*, 447.

42 Ibid., 478.

other, each one with his specific tools, until each of them hears the other digging.<sup>43</sup> It is meaningful to mention that the actual encounter is only suggested, thus preserving not only the incompleteness of science stressed earlier, but also, as Schopenhauer admits in his “Epiphilosophy”<sup>44</sup>, even of metaphysics. Strictly speaking, the confluence of a science which is inherently incapable to go back to the essence of the world, but which will continue to progress, and metaphysics which is set once and for all, is unprovable and will remain so. Nevertheless the meaning which metaphysics confers to our experience of the world may be considered as scientifically acceptable as long as it has not been invalidated by scientific results. This seems to be the case, so far, of Schopenhauer’s philosophy. The quest for “meaning” seems to be inherent to the human mind as suggested by experiments conducted with “split-brain” patients.<sup>45</sup> Man has a need to confer meaning to his life. He does this by constructing, more or less consciously, a worldview. This meaning can be satisfied by science for materialists, by religion for spiritualists, and, why not, by Schopenhauer’s metaphysics for those who do not recognize themselves in the two previous categories. The latter one, in my view, has the advantage of being founded only on the outer and inner experience of each of us, of not relying on transcendent principles, of taking into account the cognitive aspect of our world experience, and, finally of providing the foundation for non prescriptive and secular ethics.

One may predict, without much danger to go astray, that the sciences will have to take into account the cognitive aspect of our perception of the world: “the world is my representation” of Schopenhauer. The turn is already being taken by neurobiology and quantum physics, but other branches of science will have to include it in their way of thinking. Some physicists, like Erwin Schrödinger (1887–1961) have been quite conscious of it. More recently the French physicist Bernard d’Espagnat has come to a similar conclusion through his interpretation of quantum mechanics which led him to the hypothesis of a “veiled reality”, similar to Schopenhauer’s and to the even earlier views of the Advaita Vedanta.

To summarize, it would seem that, at the beginning of the 21<sup>st</sup> century Schopenhauer’s philosophy is, more than ever, able to confer a meaning and a unity to the wealth and diversity of results obtained by present-day sciences. It can be regarded as a useful reading frame for the subjective understanding of the world, ending up in this “theory of everything” capable to satisfy the quest for meaning so deeply rooted in human nature. As stated by our author:

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43 Schopenhauer, Arthur: *De la volonté dans la nature*. Translated by E. Sans. Presses Universitaires de France, coll. Quadrige, Paris 1969, 62.

44 W II, ZA, 750–757 (WWR II, 640–646).

45 Staune, Jean: *op. cit.*, 409.

The discovered answer to a riddle shows itself as the right one by the fact that all the statements of the riddle are consistent with it. Thus my teaching enables us to perceive agreement and consistency in the contrasting confusion of the phenomena of this world, and solves the innumerable contradictions which, seen from every other point of view, are presented by it.<sup>46</sup>

But, from there, to consider that the riddle of the world has been solved in its last entrenchments is a step that the author of *The world as Will and Representation* does not dare:

Therefore the actual, positive solution to the riddle of the world must be something that the human intellect is wholly incapable of grasping and conceiving; so that if a being of higher order came and took all the trouble to impart it to us, we should be quite unable to understand any part of its disclosures.<sup>47</sup>

Fundamentally, the mystery remains.

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<sup>46</sup> WII, ZA, 216 (WWR II, 184–185).

<sup>47</sup> *Ibid.*, 216–217 (WWR II, 185).