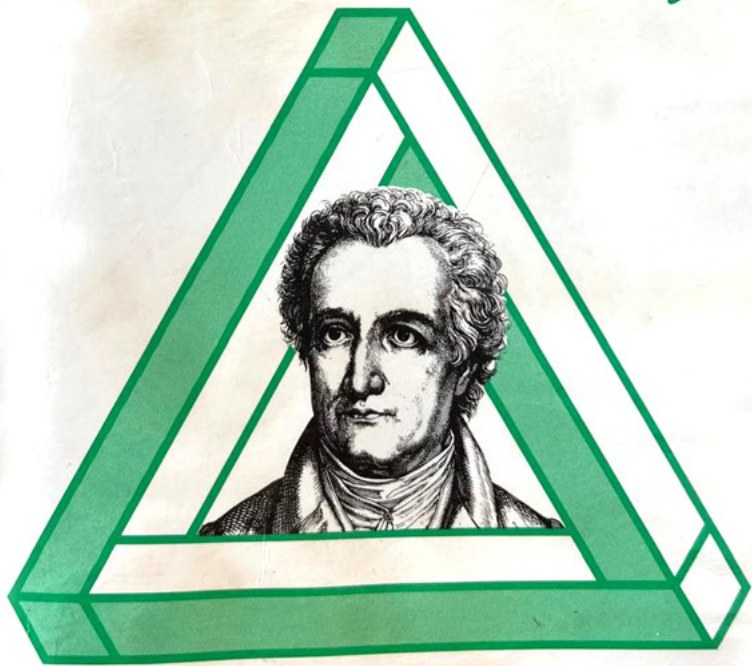


GOETHE'S SCIENTIFIC CONSCIOUSNESS

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INSTITUTE FOR CULTURAL RESEARCH

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4. The Scientist's Knowledge

In conclusion we will look briefly at Goethe's view on the nature of scientific knowledge itself. In doing so we find an understanding of knowledge which is very different from the way that we understand it today — although it would not have been so unfamiliar to Goethe's contemporaries, and especially not to such philosophers as Schelling and Hegel. We consider knowledge to be a subjective state of the knower, a modification of consciousness which in no way affects the phenomenon that is known, this being the same whether it is known or not. Goethe, on the other hand, saw the knowledge of a phenomenon as being intimately related to the phenomenon itself, because for him the state of 'being known' was to be understood as a further stage of the phenomenon itself. It is the stage which the phenomenon reaches in human consciousness. Consequently the knower is not an onlooker but a participant in nature's processes, which now act in consciousness to produce the phenomenon consciously as they act externally to produce it materially. This is the meaning of Goethe's remark that the aim of science should be that "through the contemplation of an ever creating nature, we should make ourselves worthy of spiritual participation in her production".

If 'being known' is a higher stage of the phenomenon itself, then the phenomenon should not be imagined as being complete whether it is known or not. The participatory view of the role of consciousness in knowledge is therefore an evolutionary view, in the widest sense, because the state of 'being known' is an evolutionary development of nature itself. When consciousness is properly prepared it becomes the medium in which the phenomenon itself comes into presence. We call this 'knowing the phenomenon', and understand it subjectively. But in a more comprehensive view it is the phenomenon itself which appears in consciousness when it is known. The act of knowing is an evolutionary development of the phenomenon and not just a subjective activity of man. This is the ontological significance of intuitive knowledge. The true significance of 'theory' now becomes apparent. When the phenomenon becomes its own theory, this is a higher stage of the phenomenon itself. Evidently this does not apply to the kind of theory which is an intellectual framework imposed on the phenomenon by the mind — as discussed in

section 2.3.2. Thus the phenomenologist of nature himself becomes the apparatus in which the phenomenon actualizes as a higher stage of itself. This brings us to a more comprehensive form of the principle of the wholeness of the apparatus and the phenomenon being investigated (see note 49). In this case the scientist himself becomes the apparatus in which the phenomenon appears. Hence, for the intuitive knowledge of nature, when the phenomenon becomes its own theory, we have the ontological condition that the knower and the known constitute an indivisible whole.

What makes this particularly difficult for us to understand is the extreme separation between subject and object, consciousness and the world, which is characteristic of the onlooker consciousness. This separation is a consequence of over-reliance on the intellectual mind and the analytical mode of consciousness with which it is associated. Although this extreme dependence on the verbal-intellectual mind developed over a period of time throughout western Europe as a whole, it is demonstrated particularly clearly in the writings of Descartes. For this reason he can be taken as representative of the shift in awareness which marks the emergence of modern western man. Although he is famous for his statement "I think, therefore I am", he is best approached through his first two *Meditations*.⁹² Here, in a few pages, he shows how he was led to doubt the existential status of his experience. Since he cannot tell whether he is dreaming or not, he cannot be certain that the world exists, or even that his own body exists. He indicates how he eventually came to experience a feeling of certainty that "I am, I exist" in the act of thinking itself. So he is led to identify himself as a thinking being, and as such he feels himself to be separate and independent from the world, as well as from his own body. Descartes then equated thinking with subjective experience in the widest sense — which subsequently came to be identified with consciousness.⁹³ Thus the famous Cartesian dualism between consciousness and the world was born, and it is inherent in this dualism that consciousness has the role of onlooker to a world which is outside itself.

It is well-known that, as soon as Descartes' philosophy is looked into, it rapidly becomes incoherent — and much of modern philosophy has been concerned with the attempt to break away from the Cartesian framework. For example, Descartes identified the world with the property of extension; hence consciousness *must* be non-extended. But if consciousness is non-spatial, how can the world be 'outside' it? As Gilbert Ryle put it: "What is the External World external to?"⁹⁴ Can we even count consciousness and world as 'two' without thereby reifying consciousness in our imagination, as if it were a ghostly thing, and thus contradicting its essential nature? Even if we ignore these difficulties, as

many have, there remains the problem of how two factors which are divorced so exclusively can ever be related. Thus it becomes a problem as to how unextended mind and extended body can interact. Similarly, it becomes a problem as to how the subject can arrive at knowledge of the external world. But any attempt to solve these problems must be self-defeating, because it rests on the very assumption which generated them in the first place. Heidegger has called the persistence of the question "How does the subject arrive at knowledge of the so-called external world?" the real scandal of philosophy.⁹⁵ In fact Hume demonstrated, over two centuries ago, that the attempt to take subjective experience as a starting point ultimately leads to total scepticism about the existence of a self which has that experience. In other words, Hume made the incoherence in Descartes' philosophy fully visible.⁹⁶

Yet the fact remains that this is how we do think of ourselves in relationship to the world. We do have an impression of ourselves as being separate and independent from the world, detached from nature, which puts us in the position of being onlookers. It is this sense of separation that gives us the attitude which is necessary to be able to treat the world as an object to be operated on, manipulated and organized. In other words, this is the condition of consciousness which is necessary for us to approach the world from our modern technological standpoint, both instrumentally and conceptually. It has been pointed out often enough that it is only by withdrawing ourselves from the world that we can feel sufficiently separate to be able to approach it in a detached way as an object. Subject and object are born together, so that a change in the mode of one necessarily entails a change in the mode of the other. It has also been pointed out equally often how this attitude developed strongly in western Europe during the sixteenth and seventeenth centuries. It has been mentioned in section 2.1 how the development of science from Newton to Goethe was in the direction of *measuring* nature, i.e. concerned with those aspects of nature which can be represented quantitatively. In order to do this it is necessary to organize nature with a network of concepts which we impose on nature. The mathematically-based physicist then works with these conceptual representations instead of with the perceived phenomena. We are so accustomed to this that we do not realize just how much the physicist inhabits a thought-world of his own making, and hence we identify this thought-world with nature itself. To recognize this needs a shift of attention to make the activity of the mind visible to itself. The mathematical physicist and the industrial entrepreneur are alike in that they are both concerned with the technical-conceptual organization of what they see as 'the external world'. Both depend on the onlooker condition of consciousness for which it is

"commonsense" that knowing is a subjective state of the knower, and the knower is ontologically separate from the known.

This 'onlooker' condition of consciousness is a consequence of emphasizing the thinking activity of the intellectual mind. We can see this quite easily by returning to Descartes. He liked to spend his mornings in bed "meditating" in a thinking kind of way. In this situation his attention was withdrawn from the world, as well as from his own body, and focussed onto the activity of thinking. Thus, whereas his body was inactive, his thinking activity was by comparison hyperactive. The psychological effect of doing this was to produce an awareness of the world and his body as being outside himself, together with the feeling that he himself existed in this intensified activity of his mind. Hence he experienced a strong sense of being separate from the world, and even his body, which therefore seemed unreal compared with his mental activity. Through directing his attention onto the thinking activity of the intellectual mind he became an onlooker-consciousness. He felt himself to be identified with his thinking activity, and he expressed this feeling that *he* existed in thinking by "I think, therefore I am", or by saying "I am, I exist" as a being whose nature is to think and no more. In fact, as mentioned already, he then widened this to include all of what today we would call 'conscious experience'. Thus the Cartesian dualism and the onlooker consciousness are *psychological* consequences of emphasizing the verbal-intellectual activity of the mind. Descartes' philosophy is therefore a projection of the psychological state which he produced in himself. In other words, he made himself into a psychological apparatus for producing the Cartesian philosophy. Once again we find that a more comprehensive approach is needed, in which the content of cognition and the condition of consciousness for that cognition must be considered as a whole. Evidently this is just what the *onlooker* consciousness cannot do. But Descartes' philosophy must be considered even more comprehensively. It is also an expression of an historical-cultural situation, which it simultaneously helped to produce, and not merely the subjective expression of an isolated individual.

It is inevitable that when Goethe's understanding of scientific knowledge is seen through Cartesian spectacles it seems to make knowledge into something entirely subjective. Goethe's view could be called "organic" because it sees knowledge as a further development of the phenomenon itself. In point of fact, a more organic understanding of knowledge preceded the modern period, although this is often missed because of the inevitable tendency to look back towards earlier periods with the perspective of the onlooker consciousness. Owen Barfield, for example, draws a parallel between Goethe and Aristotle. Pointing out

that the primal phenomenon of colour and the organic archetypes are neither objective nor subjective, he says:

"They come into existence as types, or as laws, only as they are intuited by human beings. And until they have so come into being, the object itself is incomplete. Knowledge in fact, so far from being a mental copy of events and processes outside the human being, inserts the human being right into these processes, of whose development it is itself the last stage."⁹⁷

He sees this as being parallel to Aristotle's conception in *De Anima* of the reality (*eidos*) which only exists potentially (*dunamei*) until it is known, and when it is known it has its full existence actually (*energeia*). Aristotle's understanding of knowledge was elaborated further by Aquinas in the Middle Ages.⁹⁸ But this organic understanding of knowledge, which sees it as a mode of participation in the phenomenon, was not restricted to the Aristotelian tradition. Gadamer reminds us that "this involvement of knowledge in being is the presupposition of all classical and mediaeval thought". So the philosophers of these earlier periods conceived "knowledge as an element of being itself and not primarily as an attitude of the subject".⁹⁹ If we look on this "involvement of knowledge in being" as a remnant of primitive animism, this in itself is an indication that we are perceiving it with the Cartesian attitude of the onlooker consciousness.

After the emergence of the onlooker consciousness as the dominant attitude of modern western culture, the perspective of the knower as a participant in the known became an underground minority viewpoint. Whenever it came to the surface, as it did from time to time, it was usually misunderstood because it was interpreted in the perspective of the onlooker consciousness. Goethe's own period in Germany was such a time. The organic understanding of knowledge emerged in the Romantic movement, post-Kantian philosophy, and the philosophical approach to nature (*Naturphilosophie*). It was from his contact with the philosopher Schelling, for example, that Goethe learned how his own way of science exemplified a participatory way of knowing nature. Schelling held the view that in knowing nature the scientist produces nature — which looks like an extreme form of subjective idealism to the onlooker consciousness. It was in the light of what he learned from Schelling that Goethe subsequently expressed the aim of his science to be that "through the contemplation of an ever creating nature, we should make ourselves worthy of spiritual participation in her production".¹⁰⁰ As the waves of influence from these movements spread outwards in space and time they inevitably became more diluted, eventually degenerating into romanticism and sentimentality.¹⁰¹ It is surprising to discover how

widespread the influence of the organic understanding of scientific knowledge was — even if it was sometimes only sentimental. For example, we find the man we usually think of as a hard-headed Victorian materialist, T.H. Huxley, contributing Goethe's prose aphorisms on Nature as the opening article for the first number of the weekly science journal *Nature*. Huxley commented: "It seemed to me that no more fitting preface could be put before a journal, which aims to mirror the progress of that fashioning by Nature of a picture of herself, in the mind of man, which we call the progress of science."¹⁰²

As stated in the Introduction, the real value of Goethe's way of science is independent of any comparison, favourable or otherwise, with the mainstream of science. Also, the value of Goethe's way is not to be found in whatever individual discoveries he may have made. The real value of his original approach to science is that it is a new way of doing science, and a new way of seeing Nature as a whole. As such it belongs to the present and not to the past. It is an original event of perception in which we can learn to participate. By seeing how the philosophy of Goethe's way of science is illuminated by contemporary European philosophy, and especially how the psychology of this science is clarified by recent research into the psychology of consciousness, we can begin to recognize that this is an authentic way of science in its own right. The science which belongs to the intuitive mind and the holistic mode of consciousness can reveal aspects of the phenomena of nature which *must* be invisible to the verbal-intellectual mind and the analytical mode of consciousness. No matter how sophisticated today's institutionalized science may become, or how much further it may be developed, it will still be concerned predominantly with only the quantitative aspects of phenomena, which can be measured and represented by a number. No matter how beautiful, elegant and harmonious the equations may be to the mathematical physicist, the fact remains that the variables in the equations represent quantities. Hence science today is concerned with only one aspect of the phenomena, and there are other aspects which cannot be reached in this way. Goethe's way of science, by contrast, can be seen as the science of quality instead of quantity — but we need to have the corresponding experience to understand what this means.¹⁰³

At a time when, once again, some physicists are saying that the key to the Universe is in sight, it may be useful to be reminded that the science in which they work is only one-dimensional, and that there are aspects of the phenomena to which it is blind. To be able to see these other aspects there would need to be a transformation of science itself. But this needs a transformation of the scientist. The result of such a transformation would be a radical change in our awareness of the relationship between Nature

and ourselves. Instead of mastery over Nature, the scientist's knowledge would become the synergy of man and Nature. The historical value of Goethe's work, in the wider sense, may be that he provides us with an instance of how this can be done. If this should turn out to be the historical significance of Goethe, then our present science will be only a phase in the development of science. Goethe will then be seen as a precursor of a whole new way of science, for which, to paraphrase Goethe himself, he will be "an instance worth a thousand, bearing all within himself".

Notes and References

1. Rudolf Magnus, *Goethe as a Scientist* (New York: Collier Books, 1961), p.22.
2. English-speaking historians often refer to this as the Whig interpretation of history, using a particular instance to designate a general historical outlook. See Hugh Kearney, *Science and Change 1500-1700* (London: Weidenfeld and Nicholson, 1971), pp. 17-22.
3. Rudolf Steiner, *Goethe the Scientist* (New York: Anthroposophic Press, 1950), p.15 and p.31.
4. Ted Bastin (ed.) *Quantum Theory and Beyond* (Cambridge: Cambridge University Press, 1971), pp. 321-34.
5. Rudolf Steiner, op. cit. p.1.
6. Norwood Russell Hanson, *Patterns of Discovery* (Cambridge: Cambridge University Press, 1958), p.13.
7. Ernst Lehrs, *Man or Matter* (London: Rudolf Steiner Press, Third Edition, Revised and Enlarged, 1985), p.131.
8. Isaac Newton, "The Origin of Colours," in Michael Roberts and E.R. Thomas, *Newton and the Origin of Colours* (London: Bell, 1934), pp. 71-91.
9. Isaac Newton, *Opticks* (New York: Dover, 1952), p.124.
10. For example, a science report in *The Times* (London, December 4, 1984, p.16), begins: "In much the way that beams of ordinary light comprise a mixture of colours of the rainbow,...."
11. A much more detailed treatment is given in Lehrs, op. cit.
12. The spectrum described by Newton, and repeated in physics books, contains seven colours: red, orange, yellow, green, blue, indigo and violet. But most observers find they can only distinguish six colours- indigo is missing. Newton's choice of seven colours has been traced to his interest in musical theory, and the Pythagorean division of the octave into seven intervals. See I. Bernard Cohen, *The Newtonian Revolution* (Cambridge: Cambridge University Press, 1980), p.205.
13. Idries Shah, *A Perfumed Scorpion* (London: Octagon Press, 1978), p.25.
14. Norwood Russell Hanson, *Perception and Discovery* (San Francisco: Freeman, 1969), p.61.
15. Designed by Jackie Bortoft.
16. See note 6.
17. Ludwig Wittgenstein, *Philosophical Investigations* (Oxford: Blackwell, 1968), p.169.
18. The view that the proper objects of perception are meanings has been presented with considerable clarity and cogency by the the philosopher of