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STATEMENT BY PROFESSOR BERNARD d'ESPAGNAT

At The Templeton Prize News Conference, March 16, 2009

Ladies and Gentlemen:

First of all let me express my most heartfelt thanks to the John Templeton Foundation and let me tell President Templeton how deeply I feel honored at having received this prestigious prize, aimed at rewarding a significant contribution to affirming life's spiritual dimension. Honored and, at the same time, feeling very humble for, while fully sharing Sir John Templeton's guiding idea that no domain is, in the long run, more important than that of spirituality and its possible evolution, I also deeply realize how ticklish it is. I am fully aware of the danger of getting astray on exploring it. There is nevertheless no question that I should balk at telling you about my own views on the matter. But for them not to seem arbitrary a small detour though the field of physics proves necessary. Don't be afraid: we shall keep to the essentials!

As all of you know, last century saw the rise of quantum physics, which constituted a truly dramatic advance in human knowledge. Indeed its axioms are by know to be found at the core of practically all basic scientific disciplines, so the change was really enormous. What was its most essential feature? As for me, I consider that, when all is said and done, it consisted in what follows: pre-quantum physics – the physics we call *classical* – was *descriptive* whereas quantum physics is *predictive*, and more precisely *predictive of observations*.

Let me make this clear. Classical physics is essentially the physics we learned in high school (incidentally, rightly so: it is the simplest, it lies at the basis of most technologies, and one should beware confusing issues). Calling it "descriptive" just refers to the fact that it is a tentative description of reality *as it really is*. It states there *are* material bodies. It states there *are* electric and magnetic fields. To these entities it associates mathematical symbols, which, it asserts, obey certain laws. And it is after all this has been duly explicated that, from the said laws, experimentally testable consequences are derived, tests of which constitute a posteriori verifications of the validity of the theory. Essential as it is, this latter stage – verification through observation and experiment – is still external to the theory proper: in principle it is quite possible to present and explain the theory in question without bothering to describe the experiments that make it testable. When they have to do with a theory of this type, grounded on the idea that the entities it deals with do really exist by themselves, quite independently of whether we see them or not (we apprehend them or not) philosophers – who rather like giving queer names to simple views – sometimes say that it is consistent with *transcendental realism*. As you see, despite its

somewhat esoteric name transcendental realism is so natural a conception that you would take it to be dictated by obviousness and good sense.

And still, strange as it may seem, when you strive at consistently explicating quantum physics along these lines – that is, taking into account the idea that the elements of reality represented by the mathematical symbols appearing in the theory really exist somewhere in space – you meet with near to insuperable difficulties. I won't swear to that they are insurmountable but it is a fact that attempting to surmount them – a field of research thoroughly explored ever since quantum physics appeared – has as yet led to no suggestion sufficiently credible to gain general acceptance. And correlatively it is now clear that to strictly keep to the, apparently obvious, notion that all individual things really exist at some separate places in space whether we know about them or not is not fully compatible with our knowledge: It appears that a certain type of holism, not straightforwardly perceptible but hidden in the equations, must be taken into account.

All this is somewhat disconcerting. Still, quantum physics does exist. Nay, so long as predicting observational or experimental outcomes is the matter it is inordinately successful. And this, after all, is no mystery. It goes along with the fact that, as it turns out, the simplest and most consistent way of explicating quantum mechanics is to formulate its basic principles no more as propositions to be applied to entities (as, in classical physics, was the case) but, directly as observational predictive rules. Personally, as I said, I infer from this that quantum physics is not descriptive, that it is predictive of observations. And in view of its quite central position, at the very core of almost all scientific disciplines, I claim the same is true of science itself. I think that in the last analysis it is aimed, not at describing "reality as it really is" but at predicting what will be observed in such and such circumstances.

When all is said and done I therefore consider that the – apparently so sensible and self-evident – world view we called transcendental realism is to be dropped after all. I think that our scientific knowledge finally bears, not on reality-in-itself – alias "the Real," alias "the ground of everything" – but just on *empirical* reality, that is, on the picture that, in virtue of its structure and finite intellectual capacities, human mind is induced to form of reality-in-itself. And, account being taken of the hidden wholeness I mentioned before, I even claim that we must drop the view according to which objects, be they elementary or composite, exist by themselves and are at any time at some definite place is space. To state that we see them so because the structure of our senses makes us perceive the Real in this form seems to be nearer to the truth. Admittedly this conception of mine is not the one the bulk of the scientists' community favors. Note however that it is quite far from just being my personal one. On the one hand it meets with the views of outstanding contemporary neurologists specialized in cognition theory. And on the other one it obviously bears quite a definite relationship with the main Kantian views, which were adhered to by a great many philosophers as well as by some physicists such as Henri Poincaré. What I just showed you is that it also gets the – indirect – support of the most productive basic physical theory, which obviously imparts to it an even greater weight.

Let me add however that on one issue I part company with Kant and perhaps also Poincaré as well. The point is that, while my analysis of physics keeps me away from materialism it does not turn me into an idealist philosopher. I totally agree with the majority of my scientist colleagues in rejecting the view that finally all boils down to ideas *we* have. I consider it obvious that something resists us: a *ground of things* that, however, lies so much beyond our concepts, be they familiar or mathematical, that the phenomena – those we directly perceive as well as those science

describe – do not enable us to decipher it. On it they provide us with merely glimpses, and very vague ones at that.

At this point I'd like to draw your attention on the fact that, if true, this conception of mine has two significant consequences.

One of them is that if indeed it is our mind that, due to its own structure, carves all *objects* out of the "ground of things," obviously we cannot any more picture mind to ourselves as being itself an emanation of (some class of) *objects*. If the notion "emanation" is here to be kept, we may only claim that mind emanates "from the ground of things." As we shall immediately see, the difference is far from being a negligible one.

For indeed – and this is nothing else than the second consequence I just mentioned – this "ground of things," this Real, quite obviously is not a thing. Clearly it is not imbedded in space, and presumably not in time either. Let us call it "Being" if you like. Or "the One," following Plotinus. Since science cannot tell us anything about its nature, clearly it cannot tell us what its nature is not. And, similarly, it cannot rule out the possibility that also other forms of mind activity yield imprecise glimpses on it.

This latter point is important for it refutes the idea that there would exist, on the one hand science, qualified and solely qualified for gaining a knowledge of the ground of things, and on the other hand art, music, poetry etc. confined to the realm of pleasure. I believe that intuitively most admirers of classical music, art or poetry always brushed aside such an idea. For isn't it true that they also have the strong feeling – nay, for some, the conviction – that, beyond mere pleasure, the emotions they feel on such occasions sort of open to them a window looking out on a "something" they somehow know is essential? Is it conceptualized knowledge? Of course not. I do not claim for a moment that, just because he/she feels such an emotion, the listener to a Beethoven symphony or the beholder of Vermeer's *View of Delft* acquires a knowledge comparable in nature to scientific knowledge. Moreover, artistic emotions essentially imply the impression of a mysterious realm which we may merely catch a glimpse of. Manifest is the difference with science, which, within its domain proper, does really dispel mysteries. But look here. Remember that according to my conception the domain in question, the one of science, is not the *ground of things*. It is *empirical reality*, that is, the set of the *phenomena*: everything that we may or might observe by whatever means. Over *that* field science truly reigns. There, it and it only yields true knowledge. On the other hand, concerning the *ground of things* science has no such privilege. In this domain its positive contribution, just as the one of the other modes of approach I mentioned, consists at best of quite hazy indications, not of organized knowledge. It is true that, even there, it has quite an important function, since it convincingly invites us to discard too naive tentative representations of the said ground of things. But clearly this role is but negative.

I promised I would state my views relatively to spirituality and what we just saw concerning artistic or literary sensibility will make this easy. For indeed the former is, same as the latter, grounded in part – but this part is quite essential – on affectivity or, in other terms, on emotion. Which entails that it does not go without mystery, and this is indeed one of its most important elements, and one that no great spiritual figure ever claimed we could make vanish. Between the mentality of religious people and that of classical physicists this was I think, one of the main differences since, in the eyes of the latter, it was in principle possible to attain, be it only

asymptotically, a knowledge of the ultimate nature of things, so that anything having to do with mystery was doomed to final elimination. But this is precisely the point on which my conception parts from theirs. For indeed in it, as we saw, the *ground of things*, alias, Being, lies beyond the reach of conceptualized knowledge, and mystery is not therefore something negative that has to be eliminated. On the contrary it is one of its constitutive element. The above mentioned conflict between science and religion therefore vanishes.

A metaphorical but expressive way of stating this is to say that in the form they conceived of it the classical physicists' task seemed to be to explain everything by starting "from the bottom," that is from elementary material components taken to be *the* fundamental entities and by showing that little by little they combine in such a way that finally the complex colorful world we see emerges. While, to the – limited – extent to which the word "explanation" may be used in this case, my own conception of present day physics rather favors, as religions do, an explanation "from the top," that is, to repeat, grounded on a Being endowed with some mysterious unity and whose essence is not fully describable by means of conceptualized talk alone.

Sure, it is not for a scientist such as me, who spent his whole life juggling with equations, to speak on spirituality. I stand outside the temple, so to speak. Still let me state once again that I feel myself deeply in accordance with the Templeton Foundation's great, guiding idea that, even in this domain, science does shed light. In my view it does so mainly by rendering unbelievable any intellectual construction – of whatever nature – claiming to yield access to the ultimate ground of things with the sole use of the simple, somewhat trivial notions everybody has. In particular, it reminds us that, even though images are needed, the letter kills, so that in this particular field science finally incites us to primarily resort to personal mental deepening. Ultimately therefore its message there is not so very different from the one we get from the most beautiful and inspiring Romanesque cloisters. Of course I don't forget that in the world at large spirituality takes up many different forms and that some of them are quite definitely to be brushed aside, either because they went astray into fanaticism and apology of violence or just because they indoctrinate and overuse simplistic images of the type that stir up the crowds. The worse, in that realm, verges the best. But the best exists. I consider I have sound reasons to believe in the *ground of things* I mentioned, lying beyond our ability at conceptualizing and which from time immemorial thinkers, less naive than was often thought, called "the Divine." I like conceiving it to be infinitely lovable and am therefore convinced that those among our contemporaries who believe in a spiritual dimension of existence and live up to it are, when all is said, fully right.

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