

CORRESPONDENCE

TO THE EDITOR OF THE *Journal of Philosophical Studies*.

THE CASE FOR EMERGENT EVOLUTION.

SIR,

Mr. H. Wallis Chapman's letter (*Journal*, vol. iv, p. 286) should receive the attention it deserves. The more thoroughly such questions as he raises are considered in intimate detail the better.

With respect to his pertinent comments on the order of nature, they may well serve as a basis of further discussion, say under the text of Dr. Broad's statement: "On the emergent theory . . . there would be two fundamentally different types of law which might be called 'intra-ordinal' and 'trans-ordinal' respectively" (*Mind and its Place in Nature*, p. 77). But I question whether a further expression of opinion on my part would carry any weight. One whose schooling in logic is long out of date should yield place to far more highly trained specialists.

Whatever the phrase may have then meant, I was taught in my youth that there is one "order of nature," for ever on the go, with strict uniformity in the course of events. This I still accept as a sound maxim of good policy in the conduct of inquiry. But I ask: Does this sweeping generalization hold in *all* respects, or in some respects only? If in some respects only, then in other respects the order of nature may be that of a world still in the making. It is in these other respects, and these only, that emergent evolution finds its province of inquiry. And what these other respects are, if such there be, can only be disclosed under prolonged and careful sifting of all the available evidence.

It goes without saying that it may some day be shown that there are no "other respects." The sweeping generalization may turn out to be true in all respects. If so, so be it. To-day, however, the hypothesis of emergence may be not unworthy of critical consideration.

But some critics—your correspondent is not among them—fail to realize that, frankly and avowedly, emergent evolution deals only with these other respects. In all cases we have to reckon also with the realm of not-emergent evolution. This not-emergent realm is that of the deducible—of the predictable before the event. In this respect, if I may so put it, the game that is played by all going concerns is the same game with one set of rules of the game. And these rules hold good whenever and wherever it is played. I take it that, broadly speaking, the whole space-time game, *as such* (or in this respect), is played under rules that are for ever, and throughout the universe, the same. And I take it that, so far as a strictly mechanical interpretation holds with respect to composite "particles," giant or invisibly pigmy, the game and the rules of the game are not-emergent. Emergent evolution, in these respects, does not come into the picture. We keep within the realm of the deducible.

According to the emergent hypothesis, however, there are some games—conspicuously the game of life so far as we yet know—which, from the evolutionary point of view, may be such that there seem to come on to the scene quite new rules of the game which can only be learnt through experiment and observation when the game is already in play. If this be so, the question in any given instance is: In what respects, if any, are there new rules in the game that is in play? This question Mr. Chapman asks with special reference to the vapour-game, the liquid-game, and the solid-game.

He here confines himself to "emergents in respect only of their spatio-temporal qualities," quoting this ambiguously elliptical expression from me. What I ought to have said is "emergents in respect only of the spatio-temporal qualities which are co-related with them," or something perhaps still more cumbersome.

With regard, then, to these co-related spatio-temporal characters, Mr. Chapman

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adduces the Van der Waals' equation, which "was devised to represent the behaviour of substances in a state of vapour, but was then found to express the change from the gaseous to the liquid state." And he suggests further developments in terms of "stable oscillations about the points of a space-lattice" which "would express the passage from liquid to crystal."

This is admirably to the point. I hope that it may open up further discussion. But would a contribution to such further discussion on my part be of any value? It is surely a matter for experts well up to date in physics and in the logic of the deducible.

There I might leave it. Lest, however, this should seem discourteous to your correspondent, or be taken as canny evasion of a pertinent issue, I will add just a little.

The question, as I read it, is whether in passing from vapour to liquid, and from liquid to solid, in this or in reversed order, *all* that happens is deducible, or *something* that happens escapes the close meshwork of deduction. It is for the expert to say. He can tell us the rules of the game expressed in suitable equations. No doubt there are rules common to all three games. Does this imply that there are *no* rules distinctive of each of them? If it be said that there is nothing *emergently* distinctive, what does this mean? It means, I think, that given all the rules of any one game, all the rules of the other two games (as they are actually played in existent nature) are simply matters of logical deduction on the part of one who is suitably trained for this task.

Let us then suppose that in some corner of the universe the order of evolution was first vapour, then liquid, then solid. Let us also suppose that some imaginary person, adequately trained, lived in the precedent vapour-epoch and knew all the rules of this game. Then he could foretell *all* the rules of the liquid-game, and *all* the rules of the solid-game, though neither of these subsequent games were yet in play in his corner of the universe. They would be the actual rules in the existent world, not only such rules as were logically possible.

I do not say that he could not do so. I only ask: Could he do so? It is for the expert to tell us whether, in this province of inquiry, there are what Mr. Broad calls "trans-ordinal laws" or not.

With brief reference to the life-game, Mr. Chapman reminds us that Professor Boycott finds it "hard to say where the term 'living' becomes appropriate and where it ceases to be so." Many others are in like case. Experts along different lines of inquiry seek an answer to the question: Of what nature were the evolutionary precursors of unicellular organisms? Who can say, since we do not know the world-conditions under which these precursors in some way came into being? We can only conduct investigations under the conditions which are found, or which may be imposed, here and now. Along one line of approach here and now we are faced with the "virus-problem." It is highly technical—essentially a problem in which only expert opinion carries much weight. The present position, so far as an interested outside can gather, is in brief this: Some "filter-passers" are living; some may be not-living. Along this line of inquiry one does not seem yet to be within sight of an answer to the question: Are all the rules of the living-game deducible from those of the not-living game? In other words, "Emergent or not-emergent?" remains an open question.

Yours faithfully,

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TO THE EDITOR OF THE *Journal of Philosophical Studies*.

OPERA HACTENUS INEDITA ROGERI BACONI.

SIR,

I find it a little difficult to characterize adequately the temerity of Professor A. E. Taylor's excursions into intuitive palæography. Anyone who thinks that the contraction for *cum* is *cm* and for *tamen* is *tm* is surely debarred from writing on the matter at all. Whatever *cm* may stand for—and palæography is full of snags—