

MORGAN, C. LLOYD (1923/1927): EMERGENT EVOLUTION

LECTURE I. EMERGENCE

§ I. Emergents and Resultants,

But the orderly sequence, historically viewed, appears to present, from time to time, something genuinely new. Under what I here call emergent evolution stress is laid on this incoming of the new. Salient examples are afforded in the advent of life, in the advent of mind, and in the advent of reflective thought.

But if nothing new emerge—if there be only regrouping of pre-existing events and no thing more—then there is no emergent evolution.

In other words the position is that, in a philosophy based on the procedure sanctioned by progress in scientific research and thought, the advent of novelty of any kind is loyally to be accepted wherever it is found, without invoking any extra-natural Power (Force, Entelechy, Elan, or God) through the efficient Activity of which the observed facts may be explained.

The word “ emergent,” as contrasted with “ resultant,” was suggested by G. H. Lewes in his Problems of Life and Mind. Both adduce examples from chemistry and from physiology; both deal with properties; both distinguish those properties (a) which are additive and subtractive only, and predictable, from those (^b) which are new and unpredictable ; both insist on the claim that the latter no less than the former fall under the rubric of uniform causation.

When carbon having certain properties combines with sulphur having other properties there is formed, not a mere mixture but a new compound, some of the properties of which are quite different from those of either component. Now the weight of the compound is an additive resultant, the sum of the w'eights of the components ; and this could be predicted before any molecule of carbon-bisulphide had been formed. One could say in advance that if carbon and sulphur shall be found to combine in any ascertainable proportions there will be such and such weight as resultant. But sundry other properties are constitutive emergents which (it is claimed) could not be foretold in advance of any instance of such combination.

Lewes says that the nature of emergent characters can only be learnt by experience of their occurrence; hence they are unpredictable before the event. But it may be urged that this is true of all characters, whether resultant or emergent. Only as the outcome of experience can they be foretold.

Let there be three successive levels of natural events, A, B, and C. Let there be in B a kind of relation which is not present in A ; and in C a kind of relation, not yet present in B or in A. If then one lived and gained experience on the B-level, one could not predict the emergent characters of the C-level, because the relations, of which they are the expression, are not yet in being. Nor if one lived on the A-level could one predict the emergent character of b-events, because *ex hypothesi*, there are no such events as yet in existence.

One could not foretell the emergent character of vital events from the fullest possible knowledge of physico-chemical events only, if life be an emergent chord and not merely due to the summation, however complex, of constituent a-notes. Such is the hypothesis accepted under emergent evolution.

In a different field of scientific research much has lately been done to render probable resultant continuity between the not-living and the living. No evolutionist is likely to under-estimate its value. But one may still ask •whether there is not at some stage of this process a new emergent character of life, the supervenience of which must be accepted with natural piety and described in suitable terms of vital integration or otherwise. There does seem to be something genuinely new at some stage of the resultant continuity.

^The odd thing here is that the whole doctrine of emergence is a continued protest against mechanical interpretation, and the very antithesis to one that is mechanistic. It does not interpret life in terms of physics and chemistry. It does not interpret mind in terms of receptor-patterns and neurone-routes. Those who suppose that it does so, wholly misapprehend its purport.

One must, however, in some way characterise what is here to be regarded as the key-note of mechanism. I should characterise it thus: The essential feature of a mechanical—or, if it be preferred, a mechanistic—interpretation is that it is in terms of resultant effects only, calculable by algebraical summation. It ignores the something more that must be accepted as emergent. It regards a chemical compound as only a more complex mechanical mixture, without any new kind of relatedness of its constituents. It regards life as a regrouping of physico-chemical events with no new kind of relatedness expressed in an integration which seems, on the evidence, to mark a new departure in the passage of natural events.

Under naturalistic treatment, however, the emergence, in all its ascending grades, is loyally accepted, on the evidence, with natural piety. That it cannot be mechanically interpreted in terms of resultants only, is just that for which it is our aim to contend with reiterated emphasis. But that it can only be explained by invoking some chemical force, some vital dan, some entelechy, in some sense extra-natural, appears to us to be questionable metaphysics.

§ III. Involution and Dependence.

When two or more kinds of events, such as I spoke of before as A, B and C, co-exist on one complex system in such wise that the C kind involves the co-existence of B, and B in like manner involves A, whereas the A-kind does not involve the co-existence of B, nor B that of C, we may speak of C, as, in this sense, higher than B, and B than A. Thus, for emergent evolution, conscious events at level C (mind) involve specific physiological events at level B (life), and these involve specific physico-chemical events at level A (matter). No C without B, and no B without A. No mind without life; and no life without “a physical basis.”

The position then is this : Events of the kind we labelled C *involve* events of the kind we labelled B; and these in turn involve a-events. But in any given concrete case the specific way in which the a-events run their course, then and there, *depends on* the specific presence of some phase of vital B-relatedness; and similarly the specific way in which these b-events run their course—in behaviour for example—depends on such conscious C-relatedness as may be present.

I must beg that this specialised signification attaching to the words “involve” and “depend on,” respectively, be steadily borne in mind.

Emphasis on “dependence” is no less essential than that on “involution.” In a physical system wherein life has emerged, the way things happen is raised to a higher plane. In an organism within which consciousness is emergent a new course of events depends on its presence. In a person in whom reflective thought is emergent behaviour is sustained at a higher level. If the quality of deity be supervenient, the plane of conduct is yet higher. Strike out deity, and conduct is no longer sustained at that level. Strike out reflective consciousness and action is of a lower impulsive order. Strike out all guiding consciousness and behaviour is that appropriate to the level of life. Strike out life and the course of events drops down to the physical level.

The new relations emergent at each higher level guide and sustain the course of events distinctive of that level, which in the phraseology I suggest depends on its continued presence. In its absence disintegration ensues.

I shall speak of the relatedness which obtains wholly within any given system as intrinsic; and I shall distinguish the relatedness of this system to some other system, or systems, as extrinsic. A system of intrinsic relatedness I shall provisionally call an entity. In so far as the character of a natural entity is determined by intrinsic relatedness I shall speak of it as a quality which is an expression of that intrinsic relatedness. In so far as the character of a natural entity is determined by extrinsic relatedness to other such entities, I shall speak of it as a property which expresses that extrinsic relatedness.

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On this understanding what is supervenient at any emergent stage of evolutionary progress is a new kind of relatedness—new terms in new relations—hitherto not in being. In virtue of such new kinds of relatedness, not only have natural entities new qualities within their own proper being, but new properties in relation to other entities. The higher entities are not only different in themselves; but they act and react differently in presence of others.

At any given stage of emergent evolution the questions, then, are : What is the new kind of relatedness that supervenes ? What are the new terms and what the relations ? What intrinsic difference is there in the entity which reaches this higher level, and what difference is there in its extrinsic relatedness to other entities ? When, for example, an entity becomes an organism, however lowly in status, what intrinsic difference is supervenient, and what extrinsic difference is there in relation to its "world"? Should it become a higher entity in which conscious relatedness is present in addition to all else that is involved—what difference does this make ?

Now in order that there shall be a difference in the course of events the relatedness in question must be what I shall call effective. By this I mean that when it is present some change in the existing go of events occurs, which would not occur if it were absent,

I shall have occasion hereafter to urge, as against radical behaviourists, that mental guidance of events counts for progress and betokens a kind of relatedness that is effective. When it is present changes occur which do not occur in its absence. The manner of go in the enriched system is different. That is what I mean by speaking of guidance as dependent on the supervenient kind of relatedness at the level of mind.

Passing down a stage I accept with natural piety the evidence that there is more in the events that occur in the living organism than can adequately be interpreted in terms of physics and chemistry, though physico-chemical events are always involved.

Changes occur in the organism when vital relatedness is present the like of which do not occur when life is absent. This relatedness is therefore effective. Descending from the level of life to that of matter, no one is likely to deny that kinds of relatedness of the chemical and physical orders are severally effective in the sense that the go of events is different when they are present from that which obtains in their absence.

Here someone may intervene and ask: Why this cumbersome and pedantic phraseology? Why relatedness? Why not this or that force as the cause of such and such change in what you call the manner of go of events We are all quite familiar with the forces of inorganic nature. And we used to be told by materialists that these are the only forces and that life, to go no higher, is merely a subtle re-combination of purely physico-chemical events. You seemingly have to confess that they were mistaken; none the less you shirk the admission that life is a new and different kind of force.

On this understanding we distinguish mind, life, and matter. Within each, of course, there are many emergent sub-orders of relatedness. It is for science to work out the details—for psychology, for biology, for chemistry and physics.

The position we have reached, then, is that there are different natural systems to be reckoned with—mind-life-matter systems; life-matter systems; and matter systems. At the top-level there are modes of effective relatedness which are not present at the mid-level; at the mid-level there are modes of relatedness which are not present at the bottom level.

LECTURE II. MENTAL AND NON-MENTAL

§ VI. Minding and that which is Minded,

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In the foregoing lecture the notion of a pyramid with ascending levels was put forward. Near its base is a swarm of atoms with relational structure and the quality we may call atomicity. Above this level, atoms combine to form new units, the distinguishing quality of which is molecularity ; higher up, on one line of advance, are, let us say, crystals wherein atoms and molecules are grouped in new relations of which the expression is crystalline form; on another line of advance are organisms with a different kind of natural relations which give the quality of vitality; yet higher, a new kind of natural relatedness supervenes and to its expression the word " mentality " may, under safeguard from journalistic abuse, be applied.

Vitalism and animism are excluded if they imply the insertion of Entelechy.

For better or worse, while I hold that the proper attitude of naturalism is strictly agnostic, therewith I, for one, cannot rest content. For better or worse, I acknowledge God as the Nisus through whose Activity emergents emerge, and the whole course of emergent evolution is directed. Such is my philosophic creed, supplementary to my scientific policy of interpretation. Beyond philosophy it is not my business to go. I shall have, however, to give some grounds for my creed.

We have seen that the word " mind " may be used in three senses : first, as Mind or Spirit in reference to some Activity, for us God ; secondly, as a quality emergent at a high level of evolutionary Advance; and thirdly, as a psychical attribute that pervades all natural events in universal correlation. In what here follows I use the word in the second of these senses, i.e. as an emergent quality of correlates. I must here repeat that only in this sense is the word " emergent " in place or applicable ; for Mind as directive of emergent evolution does not emerge ; and mind as unrestricted and universal correlate is, in Spinoza's terminology, that " attribute " of the world from which the mind we are now to consider emerges at its level in the hierarchical order.

Pass now to a yet higher level. Human persons and some animals, in virtue of a supervenient kind of intrinsic relatedness, have, under correlation, the quality of consciousness. This consciousness is within the person or the animal and extends not beyond the confines of the entity thus " qualified." But that which has this quality acts and re-acts differently to other entities with which it is in extrinsic relations.

Cognitive relatedness just emerges, as something genuinely new, at a critical stage of evolutionary advance. That, however, does not preclude—nay, rather, it imperatively demands from us as evolutionists a resolute attempt to analyse the situation and to trace, if possible, subsidiary stages of emergence, on the understanding that, in evolutionary progress, there is never any breach of continuity in the sense of a gap or hiatus.

It is part of the business of analysis to distinguish factors which are inseparable. In a well-known passage (P.H.K. § 49), Berkeley distinguished that which is in mind " by way of attribute " from that which is in mind " by way of idea." The former I shall speak of as *mind^{ing}*; the latter as that which is *minded*. That which is minded always implies *mind^{ing}* ; and the more highly differentiated forms of *mind^{ing}* imply something that is definitely minded. Thus perceiving implies something perceived; remembering, something remembered; thinking, something thought of ; believing, something believed; and so on through a long list.

§ VII. Presentation, Perception and Contemplation.

Again I want to nail my colours to the mast. This is part of the philosophic creed I seek to render acceptable. Within the pyramid of emergent evolution involution without dependence gives an incomplete account of the observed phenomena from what I hold to be a strictly scientific point of view. From the philosophic point of view, I carry both to their ideal limits. I acknowledge a physical world which, I admit, is beyond proof. I acknowledge also God Who is, I contend, beyond disproof. And so far as I can judge, both acknowledgments work.

LECTURE III. RELATEDNESS

§ XI. Relation and Relatedness.

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The concrete world we seek to interpret is a going concern. We may of course, under quite legitimate device of method, take intellectual snapshots of the fluent course of events; and we may thus consider immobility in abstraction. But in concrete fact there is no immobility. Events are always involved ; and events imply change in the relations of terms.

On this understanding, emergent evolution seeks to interpret, on the one hand, the persistence and continuity of natural events, and, on the other hand, progressive advance with novelty. There is a carrying forward of old relations and the emergent advent of new relations. Hence there is perhaps no topic which is more cardinal to our interpretation—and indeed for philosophic thought—than that which centres round what I shall call relatedness.

Hence Locke can say of relations, in the sense he intended, that they “ are not contained in the real existence of things but are something extraneous and superinduced ” (§ 8).

Out of this view of the matter in certain cases, and by extending it to every case, may have arisen the contention that, in the absence of mental acts, there are no relations—all relations, as Berkeley put it, involving an act of the mind (P.H.K. § 142). This in due course led to the Kantian position, and onwards.

I want to make quite clear what I shall always mean when I use the word. It has rather an abstract look. But what I call an instance of relatedness is through and through concrete. It includes not only the relation-of-terms but also the terms-in-relation. An atom is an instance of relatedness; so, too, is an organism ; and a person. Any entity, as such, is an instance of relatedness. Any concrete situation in which entities play their part, each in respect of others, is an instance of relatedness. And it is as an integral whole of relatedness that any individual entity, or any concrete situation, is a bit of reality. May I beg that this usage be steadily borne in mind t

Relatedness in this sense gives the stuff and substance of the integral whole in some given respect on which attention is fixed for the purpose of analysis. As has already been indicated, or implied, I distinguish relatedness within the system under contemplation as intrinsic; and that of one system to another as extrinsic.

§ XV. Three-entity Situations.

In dealing with any integral whole of relatedness we must accept the legitimacy of analysis. Under analysis one distinguishes different kinds of relatedness—say conscious, vital, chemico-physical, spatial or temporal—which may all be inseparably coexistent though distinguishable. Each of these must be treated in accordance with the terms and relations appropriate to its kind. In other words the treatment should be homogeneous. And it seems permissible to deal with any given kind irrespective of co-existent kinds, so long as we do so in analytic abstraction.

LECTURE IV. REFERENCE

§XVI. Reference a matter of Conscious Regard.

But before we can deal with consciousness explicitly, and so far as possible comprehensively—in the second course of lectures—much preparation, and some laying of foundations, will be necessary. From the point of view of emergent evolution, conscious relatedness, for all its seeming simplicity and immediacy, has a history of bewildering complexity.

We must now descend a stage to the level of unreflective consciousness—that on which the guidance of animal behaviour in large measure depends. I do not say wholly depends, though in some animals it may be so—probably is so under emergent evolution. Let us say, rather, that on which the behaviour of a being with unreflective or perceptual consciousness only would depend, and speak of it as “ such an animal.” To get at this level we must divest ourselves, so far as we can, of the garment of reflective thought.

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Unreflective meaning, as distinguished from reflective significance, has immediate utility for practical behaviour, whereas significance has mediate value for conduct. Meaning involves revival of the net result of prior experience in such a behaviour situation. It must co-exist with the something given in the field of conscious regard. But from the cognitive point of view we commonly say that both the something given, say in presentation, and the something else, present under revival, have reference to what we call an object. Through its relation to meaning the presentation is raised to the level of a percept, which, as I think, is not only a resultant but an emergent with a quality which is genuinely new.

The trouble here is that the word " object " is ambiguous. It may mean the thing as it is in its own right whether it be perceived or not—i.e. what I speak of as the physical thing the existence of which we acknowledge. Or it may mean this thing as clothed with certain acquired properties due to its relation to us in perception.

The statement as I put it comes to this : The thing plays no part in constituting an object of perception until it is thus minded or perceived. This few will deny.

But new-realists may add : What it is as perceived object is just identically that which it was, and will continue to be, as unperceived thing. Nothing "accrues " to it. This, I submit, is not in accordance with those principles of emergent evolution which I seek to develop. When perception comes it enriches the world into which, in the course of evolutionary progress, it so comes. Hence, just here there is a parting of the ways of interpretation.

§ XVIII. Is there Initial Reference in the Primitive Mind?

However, we may interpret it, we seem here to have passed to a different phase, if not a different kind, of reference. We have not only the reference of something given in a field of conscious regard to something else within that field—the context of meaning or some differentiated feature therein—but further reference of what is within the field to something, in some sense, beyond it—let us say to the thing the existence of which we acknowledge to be independent of any conscious reference.

In the case of an animal that has already gained experience the like of which may be revived, there is, as we have seen, perceptual reference on the unreflective level. But what about the animal, or the human infant, at the outset of mental life.

The question before us comes to this : Is there a stage in the individual development of an organism in which consciousness is eventually emergent, when there are sensory presentations that as yet carry no meaning ? From the point of view of emergent evolution there is such a stage—one at which a behaviouristic interpretation of that which happens is adequate and sufficient even if we acknowledge psychical correlates.

§ XX. Reference supplemented under Acknowledgment.

Our discussion of reference has brought us into touch with a question which is one of the most central of all questions for philosophy. Is the concept of evolution applicable to mind ?