

METAPHYSICS:

The Big Questions

EDITED BY PETER VAN INWAGEN AND DEAN W. ZIMMERMAN



What is Time? What is Space?

5 Time: an Excerpt from *The Nature of Existence** ---

J. McT. E. McTaggart

303. It will be convenient to begin our enquiry by asking whether anything existent can possess the characteristic of being in time. I shall endeavour to prove that it cannot.

It seems highly paradoxical to assert that time is unreal, and that all statements which involve its reality are erroneous. Such an assertion involves a departure from the natural position of mankind which is far greater than that involved in the assertion of the unreality of space or the unreality of matter. For in each man's experience there is a part – his own states as known to him by introspection – which does not even appear to be spatial or material. But we have no experience which does not appear to be temporal. Even our judgments that time is unreal appear to be themselves in time.

304. Yet in all ages and in all parts of the world the belief in the unreality of time has shown itself to be singularly persistent . . .

305. Positions in time, as time appears to us *prima facie*, are distinguished in two ways. Each position is Earlier than some and Later than some of the other positions. To constitute such a series there is required a transitive asymmetrical relation, and a collection of terms such that, of any two of them, either the first is in this relation to the second, or the second is in this relation to the first. We may take here either the relation of 'earlier than' or the relation of 'later than', both of which, of course, are transitive and asymmetrical. If we take the first, then the terms have to be such that, of any two of them, either the first is earlier than the second, or the second is earlier than the first.

In the second place, each position is either Past, Present, or Future. The distinctions of the former class are permanent, while those of the latter are not. If *M* is ever earlier than *N*, it is always earlier. But an event, which is now present, was future, and will be past.

306. Since distinctions of the first class are permanent, it might be thought that they were more objective, and more essential to the nature of time, than

* From J. McT. E. McTaggart, *The Nature of Existence*, vol. II (Cambridge: Cambridge University Press, 1927). Reprinted with the permission of the Cambridge University Press.

those of the second class. I believe, however, that this would be a mistake, and that the distinction of past, present, and future is as *essential* to time as the distinction of earlier and later, while in a certain sense it may . . . be regarded as more *fundamental* than the distinction of earlier and later. And it is because the distinctions of past, present, and future seem to me to be essential for time, that I regard time as unreal.

For the sake of brevity I shall give the name of the *A* series to that series of positions which runs from the far past through the near past to the present, and then from the present through the near future to the far future, or conversely. The series of positions which runs from earlier to later, or conversely, I shall call the *B* series. The contents of any position in time form an event. The varied simultaneous contents of a single position are, of course, a plurality of events. But, like any other substance, they form a group, and this group is a compound substance. And a compound substance consisting of simultaneous events may properly be spoken of as itself an event.¹

307. The first question which we must consider is whether it is essential to the reality of time that its events should form an *A* series as well as a *B* series. It is clear, to begin with, that, in present experience, we never *observe* events in time except as forming both these series. We perceive events in time as being present, and those are the only events which we actually perceive. And all other events which, by memory or by inference, we believe to be real, we regard as present, past, or future. Thus the events of time as observed by us form an *A* series.

308. It might be said, however, that this is merely subjective. It might be the case that the distinction of positions in time into past, present, and future, is only a constant illusion of our minds, and that the real nature of time contains only the distinctions of the *B* series – the distinctions of earlier and later. In that case we should not perceive time as it really is, though we might be able to *think* of it as it really is.

This is not a very common view, but it requires careful consideration. I believe it to be untenable, because, as I said above, it seems to me that the *A* series is essential to the nature of time, and that any difficulty in the way of regarding the *A* series as real is equally a difficulty in the way of regarding time as real.

309. It would, I suppose, be universally admitted that time involves change. In ordinary language, indeed, we say that something can remain unchanged through time. But there could be no time if nothing changed. And if anything changes, then all other things change with it. For its change must change some of their relations to it, and so their relational qualities. The fall of a sand-castle on the English coast changes the nature of the Great Pyramid.

If, then, a *B* series without an *A* series can constitute time, change must be possible without an *A* series. Let us suppose that the distinctions of past, present, and future do not apply to reality. In that case, can change apply to reality?

310. What, on this supposition, could it be that changes? Can we say that, in a time which formed a *B* series but not an *A* series, the change consisted in the fact that the event ceased to be an event, while another event began to be an event? If this were the case, we should certainly have got a change.

But this is impossible. If *N* is ever earlier than *O* and later than *M*, it will always be, and has always been, earlier than *O* and later than *M*, since the relations of earlier and later are permanent. *N* will thus always be in a *B* series. And as, by our present hypothesis, a *B* series by itself constitutes time, *N* will always have a position in a time-series, and always has had one. That is, it always has been an event, and always will be one, and cannot begin or cease to be an event.

Or shall we say that one event *M* merges itself into another event *N*, while still preserving a certain identity by means of an unchanged element, so that it can be said, not merely that *M* has ceased and *N* begun, but that it is *M* which has become *N*? Still the same difficulty recurs. *M* and *N* may have a common element, but they are not the same event, or there would be no change. If, therefore, *M* changed into *N* at a certain moment, then at that moment, *M* would have ceased to be *M*, and *N* would have begun to be *N*. This involves that, at that moment, *M* would have ceased to be an event, and *N* would have begun to be an event. And we saw, in the last paragraph, that, on our present hypothesis, this is impossible.

Nor can such change be looked for in the different moments of absolute time, even if such moments should exist. For the same argument will apply here. Each such moment will have its own place in the *B* series, since each would be earlier or later than each of the others. And, as the *B* series depends on permanent relations, no moment could ever cease to be, nor could it become another moment.

311. Change, then, cannot arise from an event ceasing to be an event, nor from one event changing into another. In what other way can it arise? If the characteristics of an event change, then there is certainly change. But what characteristics of an event can change? It seems to me that there is only one class of such characteristics. And that class consists of the determinations of the event in question by the terms of the *A* series.

Take any event – the death of Queen Anne, for example – and consider what changes can take place in its characteristics. That it is a death, that it is the death of Anne Stuart, that it has such causes, that it has such effects – every characteristic of this sort never changes. ‘Before the stars saw one another plain,’ the event in question was the death of a Queen. At the last moment of time – if time has a last moment – it will still be the death of a Queen. And in every respect but one, it is equally devoid of change. But in one respect it does change. It was once an event in the far future. It became every moment an event in the nearer future. At last it was present. Then it became past, and will always remain past, though every moment it becomes further and further past.²

Such characteristics as these are the only characteristics which can change. And, therefore, if there is any change, it must be looked for in the *A* series, and

in the *A* series alone. If there is no real *A* series, there is no real change. The *B* series, therefore, is not by itself sufficient to constitute time, since time involves change.

312. The *B* series, however, cannot exist except as temporal, since earlier and later, which are the relations which connect its terms, are clearly time-relations. So it follows that there can be no *B* series when there is no *A* series, since without an *A* series there is no time.

313. We must now consider three objections which have been made to this position. The first is involved in the view of time which has been taken by Mr Russell, according to which past, present, and future do not belong to time *per se*, but only in relation to a knowing subject. An assertion that *N* is present means that it is simultaneous with that assertion, an assertion that it is past or future means that it is earlier or later than that assertion. Thus it is only past, present, or future, in relation to some assertion. If there were no consciousness, there would be events which were earlier and later than others, but nothing would be in any sense past, present, or future. And if there were events earlier than any consciousness, those events would never be future or present, though they could be past.

If *N* were ever present, past, or future in relation to some assertion *V*, it would always be so, since whatever is ever simultaneous to, earlier than, or later than, *V*, will always be so. What, then, is change? We find Mr Russell's views on this subject in his *Principles of Mathematics*, Section 442. 'Change is the difference, in respect of truth or falsehood, between a proposition concerning an entity and the time *T*, and a proposition concerning the same entity and the time *T'*, provided that these propositions differ only by the fact that *T* occurs in the one where *T'* occurs in the other.' That is to say, there is change, on Mr Russell's view, if the proposition 'at the time *T* my poker is hot' is true, and the proposition 'at the time *T'* my poker is hot' is false.

314. I am unable to agree with Mr Russell. I should, indeed, admit that, when two such propositions were respectively true and false, there would be change. But then I maintain that there can be no time without an *A* series. If, with Mr Russell, we reject the *A* series, it seems to me that change is essential, goes with it, and that therefore time, for which change is essential, goes too. In other words, if the *A* series is rejected, no proposition of the type 'at the time *T* my poker is hot' can ever be true, because there would be no time.

315. It will be noticed that Mr Russell looks for change, not in the events in the time-series, but in the entity to which those events happen, or of which they are states. If my poker, for example, is hot on a particular Monday, and never before or since, the event of the poker being hot does not change. But the poker changes, because there is a time when this event is happening to it, and a time when it is not happening to it.

But this makes no change in the qualities of the poker. It is always a quality of

that poker that it is one which is hot on that particular Monday. And it is always a quality of that poker that it is one which is not hot at any other time. Both these qualities are true of it at any time – the time when it is hot and the time when it is cold. And therefore it seems to be erroneous to say that there is any change in the poker. The fact that it is hot at one point in a series and cold at other points cannot give change, if neither of these facts change – and neither of them does. Nor does any other fact about the poker change, unless its presentness, pastness, or futurity change.

316. Let us consider the case of another sort of series. The meridian of Greenwich passes through a series of degrees of latitude. And we can find two points in this series, *S* and *S'*, such that the proposition ‘at *S* the meridian of Greenwich is within the United Kingdom’ is true, while the proposition ‘at *S'* the meridian of Greenwich is within the United Kingdom’ is false. But no one would say that this gave us change. Why should we say so in the case of the other series?

Of course there is a satisfactory answer to this question if we are correct in speaking of the other series as a time-series. For where there is time, there is change. But then the whole question is whether it is a time-series. My contention is that if we remove the *A* series from the *prima facie* nature of time, we are left with a series which is not temporal, and which allows change no more than the series of latitudes does.

317. If, as I have maintained, there can be no change unless facts change, then there can be no change without an *A* series. For, as we saw with the death of Queen Anne, and also in the case of the poker, no fact about anything can change, unless it is a fact about its place in the *A* series. Whatever other qualities it has, it has always. But that which is future will not always be future, and that which was past was not always past.

It follows from what we have said that there can be no change unless some propositions are sometimes true and sometimes false. This is the case of propositions which deal with the place of anything in the *A* series – ‘the battle of Waterloo is in the past’, ‘it is now raining’. But it is not the case with any other propositions.

318. Mr Russell holds that such propositions are ambiguous, and that to make them definite we must substitute propositions which are always true or always false – ‘the battle of Waterloo is earlier than this judgment’, ‘the fall of rain is simultaneous with this judgment’. If he is right, all judgments are either always true, or always false. Then, I maintain, no facts change. And then, I maintain, there is no change at all.

I hold, as Mr Russell does, that there is no *A* series. (My reasons for this will be given below. And I regard the reality lying behind the appearance of the *A* series in a manner not completely unlike that which Mr Russell has adopted. The difference between us is that he thinks that, when the *A* series is rejected, change, time, and the *B* series can still be kept, while I maintain that its

rejection involves the rejection of change, and, consequently, of time, and of the *B* series . . .

324. We conclude, then, that the distinctions of past, present, and future are essential to time, and that, if the distinctions are never true of reality, then no reality is in time. . . .

325. I now pass to the second part of my task. Having, as it seems to me, succeeded in proving that there can be no time without an *A* series, it remains to prove that an *A* series cannot exist, and that therefore time cannot exist. This would involve that time is not real at all, since it is admitted that the only way in which time can be real is by existing. . . .

329. Past, present, and future are incompatible determinations. Every event must be one or the other, but no event can be more than one. If I say that any event is past, that implies that it is neither present nor future, and so with the others. And this exclusiveness is essential to change, and therefore to time. For the only change we can get is from future to present, and from present to past.

The characteristics, therefore, are incompatible. But every event has them all.³ If *M* is past, it has been present and future. If it is future, it will be present and past. If it is present, it has been future and will be past. Thus all the three characteristics belong to each event. How is this consistent with their being incompatible?

330. It may seem that this can easily be explained. Indeed, it has been impossible to state the difficulty without almost giving the explanation, since our language has verb-forms for the past, present, and future, but no form that is common to all three. It is never true, the answer will run, that *M* is present, past, and future. It is present, will be past, and has been future. Or it is past, and has been future and present, or again is future, and will be present and past. The characteristics are only incompatible when they are simultaneous, and there is no contradiction to this in the fact that each term has all of them successively.

331. But what is meant by 'has been' and 'will be'? And what is meant by 'is', when, as here, it is used with a temporal meaning, and not simply for predication? When we say that *X* has been *Y*, we are asserting *X* to be *Y* at a moment of past time. When we say that *X* will be *Y*, we are asserting *X* to be *Y* at a moment of future time. When we say that *X* is *Y* (in the temporal sense of 'is'), we are asserting *X* to be *Y* at a moment of present time.

Thus our first statement about *M* – that it is present, will be past, and has been future – means that *M* is present at a moment of present time, past at some moment of future time, and future at some moment of past time. But every moment, like every event, is both past, present, and future. And so a similar difficulty arises. If *M* is present, there is no moment of past time at which it is past. But the moments of future time, in which it is past, are equally moments of past time, in which it cannot be past. Again, that *M* is future and will be

present and past means that *M* is future at a moment of present time, and present and past at different moments of future time. In that case it cannot be present or past at any moments of past time. But all the moments of future time, in which *M* will be present or past, are equally moments of past time.

332. And thus again we get a contradiction, since the moments at which *M* has any one of the three determinations of the *A* series are also moments at which it cannot have that determination. If we try to avoid this by saying of these moments what had been previously said of *M* itself – that some moment, for example, is future, and will be present and past – then ‘is’ and ‘will be’ have the same meaning as before. Our statement, then, means that the moment in question is future at a present moment, and will be present and past at different moments of future time. This, of course, is the same difficulty over again. And so on infinitely.

Such an infinity is vicious. The attribution of the characteristics past, present, and future to the terms of any series leads to a contradiction, unless it is specified that they have them successively. This means, as we have seen, that they have them in relation to terms specified as past, present, and future. These again, to avoid a like contradiction, must in turn be specified as past, present, and future. And, since this continues infinitely, the first set of terms never escapes from contradiction at all.⁴

The contradiction, it will be seen, would arise in the same way supposing that pastness, presentness, and futurity were original qualities, and not, as we have decided that they are, relations. For it would still be the case that they were characteristics which were incompatible with one another, and that whichever had one of them would also have the other. And it is from this that the contradiction arises.

333. The reality of the *A* series, then, leads to a contradiction, and must be rejected. And, since we have seen that change and time require the *A* series, the reality of change and time must be rejected. And so must the reality of the *B* series, since that requires time. Nothing is really present, past, or future. Nothing is really earlier or later than anything else or temporally simultaneous with it. Nothing really changes. And nothing is really in time. Whenever we perceive anything in time – which is the only way in which, in our present experience, we do perceive things – we are perceiving it more or less as it really is not. . . .

Notes

- 1 It is very usual to contemplate time by the help of a metaphor of spatial movement. But spatial movement in which direction? The movement of time consists in the fact that later and later terms pass into the present, or – which is the same fact expressed in another way – that presentness passes to later and later terms. If we take it the first way, we are taking the *B* series as sliding along a fixed *A* series. If we take it the second way, we are taking the *A* series as sliding along a fixed *B* series. In the first case time presents itself as a movement from future to past. In the second case it