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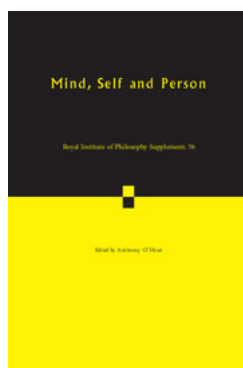
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Were You a Zygote?

G. E. M. ANSCOMBE

The usual way for new cells to come into being is by division of old cells. So the zygote, which is a—new—single cell formed from two, the sperm and ovum, is an exception. Textbooks of human genetics usually say that this new cell is beginning of a new human individual. What this indicates is that they suddenly forget about identical twins.

These result from the cleavage of a cell cluster into two cell clusters at some very early stage, which may be within a week of formation of the zygote. In the early 1970s Jerome Lejeune put the outer limit for such cleavage at thirteen days. The multiplication by cell division has not got very far at that stage; not, it seems, as far as thousands, whereas 'The human adult who started life as a single cell has about 10^{14} , or one hundred quadrillion cells'.¹

All this means that if I ask you 'Were you a zygote?' you might intelligently reply 'No, I was an identical twin'. Then I could say that you and your twin jointly were once a zygote.

A human zygote is alive, and is a human thing, a new beginning of human life, and not a part of any human being. We might say it is a human *being*: a whole new human entity. But there is an objection because what we mean by a human being is a *man* in the sense a *member of the human race*. It is a *Mensch*, if we are talking German, an *ἄνθρωπος* in Greek, a *homo* in Latin. English suffers from not having a distinct word just for this. I will save myself from having to break into German, Greek or Latin, by adopting the word 'human' as a noun to be used in this sense.

Let me state an argument against the human zygote's being a human. Suppose the cell cluster divides and twins result. I'll call the zygote 'A' and the twins 'B' and 'C'. Neither B nor C is identical with A. Therefore *either*:

- (1) A, not yet divided, was somehow already two. So A can have been already a pair of humans, B and C.

or

- (2) A was just one human, and became two by an extra one growing out of it.

or

¹ Levitan and Montague, *Textbook of Human Genetics* (Oxford University Press, 1971).

- (3) A was a single human, which turned into two by splitting, as one amoeba splits and turns into two amoebas.

or

- (4) A, though a whole human substantial entity, was not a human yet; nor was it a pair of humans.

So far as I know there is no sufficient evidence for (1). Certainly some ten years ago Professor Lejeune confessed to having no evidence on the point. 'In man we have no data.... In... [some races of armadillos] the eggs do split every time into four embryos... always the same number... So we know looking at the armadillo and the race it belongs to, how many twins are genetically imprinted in the first cell. In that case we know the determination of the number of twins has occurred at the very moment of fecundation. In humans we do not know.'

If the opinion that twinning is already imprinted in the first cell *is* true of humans, as it may be, then various problems do not arise. Philosophically, if this were true, we would not have to ask about the odd logical status of the zygote—this human entity which is an individual substance, not part of one, and not *a* human.

(2) also would be acceptable for not raising any such obscure conceptual issues. But once again, there seems not to be evidence.

The third possibility, namely that one human splits into two, I am disposed to reject out of hand. But it needs more discussion. The obvious objection is that in the case of the amoeba there's no doubt we start with one amoeba and it splits into two amoebas. But in the human case it precisely is the question whether what we start off with *is* a human. What account could we give of its becoming two humans? Neither of the two humans that eventually develop can be identified as the same human as the zygote, because they can't *both* be so, as they are different humans from one another. We might indeed say that each *had* been the same human as the zygote was, and so also the same human as the other, though they are not the same human as one another now. But what has become of the human that both of them once were identical with? Has he—or it—simply ceased to exist, as we might say the parent amoeba ceases to exist on splitting?

It is true that present non-identity of B and C does not prove that B and C *were* not identical with A and so with one another. All the same, that does not prove that B and C *may* each have been identical with A. And, whether A is a human entity or an amoeba, there is the obvious objection that before A split into B and C, B and C did not exist.

Should we say that the amoeba, and any cell that divides, doesn't

cease to exist, but continues as two, not one? That the amoeba exists in, or as, any simultaneous set of its descendants? That a single zygote cell which multiplies likewise exists in thousands of millions of its descendants? It is sometimes said: we are all Adam. Is that true in the sense—if there is one—in which the amoeba is all its descendants? No: for the amoeba did not die, but Adam died.

What has multiplied like amoebas is *cells*. We could say to a total collection of cells in the pair of twins: all you cells were once one cell. That would be parallel to the amoebas all having been one amoeba. However, it is because the cells *make up* two humans that we can say those *humans* were once one cell. With amoebas, there isn't this intervening term: we start with an amoeba and end with a collection of amoebas. In this way, then, even if the zygote *is* a human, the case of the zygote and the later twin humans is not parallel to that of the amoeba and the later set of amoebas.

Would there be at least this parallel: the amoeba doesn't die, and neither does the human who is a zygote when the zygote multiplies? No! For, assuming that the single human persists through some cell divisions up to the cleavage of cell clusters into two cell clusters which are two separate humans, that human exists in the descendent *cells* up to that cleavage; but the amoeba through division exists in descendent *amoebas*. There will be no parallel ground for saying that the human exists in the 'descendent humans' (as I will call the twins). For the humans are 'descendant' only because they are composed of descendent cells. And in the sense in which the supposed single human persists through a multiplication of cells, it does not persist through the cell cluster's being cloven into two distinct *humans*. It is no more: for nothing but persistence through a multiplication of cells is there to count as its persistence, and that cannot so count, because what it counts as after cleavage is the persistence of two new humans. Yet might we not say a parallel thing about the amoeba and the descendent amoebas? We might; but as an amoeba is one cell, the persistence through cell-division is in the amoeba simply persistence of amoeba-life through division. So the multiplication of cells *is*, formally, the multiplication of amoebas.

II

Let us consider whether I could truly say: I was once a sperm and an ovum. That is, the sperm and ovum from whose union I came were jointly I. The objection to this is just that the sperm and ovum were not one substance. That is, on a count of individual substances they come out as two until they have formed one cell.

I do not mean that each cell is a substance; most are only parts of substances. That they are so is proved by the fact of cell differentiation which soon begins to happen as they multiply by dividing. Cell differentiation is for the sake of the kind of structured, organized living material whole that gets formed through it. The kind of living thing that gets formed as a result of multiplication and differentiation of cells determines the differentiation and organization of them to the extent that this happens in a normal manner. Everywhere in a textbook of genetics the norms of health and reproduction of undefective specimens of a kind provide the aegis under which the enquirers have worked and the exposition proceeds. Note, for example, the occurrence of the term 'syndrome' in a large work on human genetics. Normally or successfully operating physiqués and powers do not constitute 'syndromes'.

If a human zygote is not itself a human, then the way in which the human kind determines its way of developing is not a matter of a species to which it already belongs as a member. It is a matter of one to which belong those individuals whose gametes united to form the zygote, and into a member or members of which it will develop if it develops normally.

If a zygote was the beginning of a new human substance, and I (singly) was that zygote, then wasn't that zygote the beginning of *this* human being? Yes; but if there can be a human substance without its being a human, then either *this* individual human substance did not begin then or at one time *this* individual human substance did indeed exist but wasn't yet a human. So I wasn't yet *a* human? That seems correct. The development from something that was a single human substance only means that I was always *something* human. As for identical twins, they were jointly something human, and then each severally something human. One can become two, then, but two cannot turn into one such that you could point back to the two and say: that's the existence that was the beginning of the existence of someone.

This needs some qualification; because two lumps of clay become one by being pressed together. The one lump had been two, and its present unity is that of spatial continuity. Two cells, a sperm and an ovum, can also become one. Would it then be true to say the zygote had been two cells?—as, to say the lump of clay had been two lumps?

No; for the latter coming-to-be-one is no substantial change but only one of deletion of boundaries. The same clay continues to exist, however pressed together or separated into lumps. But with fertilization a single—new—organism comes into existence. It has a new genetic make-up. This turns it into the immediate material for

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development of a member or members of whatever species its parents belong to. The two lives of the sperm and the ovum have ended because they have turned into an individual with a new life, the life carried by the zygote.

Here life=existence. In starting to live, this thing has started to exist. Thus if asked whether the zygote had been the two former cells, one should say: materially, yes; but in form and existence, no. Not in form, because the new living thing is of a new kind from what they were. They weren't organisms only needing nutrition to grow into a certain pattern. And not in existence because the life—its being alive—is not their being alive. But there can occur that cleavage of the multiplied cell cluster which leads to identical twins. Here the division *is* like the division of a lump of clay into two. At this stage the life is divided into two only because the living thing is cloven into two; and hence only inasmuch as it is so cloven. We cannot say yet that we have here two distinct animals. But we can say that we have two materially distinct carriers of the life that started with the formation of the zygote.