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LAWRENCE C. BECKER

Human Being: The Boundaries of the Concept

I. PROBLEMS OF DEFINITION

Uncertainty about our ability to define the biological boundaries of human life is familiar. Currently, the most prominent issue is the definition of death—specifically whether to retain the traditional cardiopulmonary criteria for death or to adopt some version of so-called brain-death criteria. The law in some jurisdictions has already begun to permit physicians to pronounce death on a finding of “irreversible coma.” And though it is clear that transplant surgery and the development of life-support technology have given impetus to the change, a number of writers have taken pains to argue that it is perfectly sound, conceptually, to redefine death.

Problems with the definition of the beginning of human life are even more frequently rehearsed. There are advocates of the biological life-cycle account, various developmental views, theological ensoulment theories, and “personhood” definitions. The United States Supreme Court has recently accepted the view that no conclusive reasons can be found for settling on any one of these rather than another.

The importance of these definitional questions for moral philosophy is obvious. Human beings protect themselves with a thicket of rights they do not grant to other beings, and some of these rights are said to

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be *human* rights—rights one has simply by virtue of being human. Any conceptual uncertainty about when an entity has become or has ceased to be human is a problem for the ascription of such rights. Further, what might be called threshold homicides—the killing of entities whose claim to being human is somewhat in doubt—have become increasingly problematic. There are intraspecies threshold questions (abortion, infanticide, some types of euthanasia) and interspecies threshold questions (the killing of other intelligent life forms).

I am concerned, here, with two propositions about the boundaries of human life, each of which has a direct bearing on current controversies and perennial moral problems:

- (1) That there is no decisive way to define, in purely biological terms, either the point at which a human life begins, or the point at which it ends.
- (2) In any case, if the end points are going to be used as moral divides, they should be defined in terms of morally relevant characteristics, not purely biological ones.

My purpose is to attack both of these propositions by proposing what I take to be decisive biological definitions of the boundaries and by giving reasons for thinking that, for moral theory, such biological definitions are preferable to “morally relevant” ones. The arguments on the latter issue are fairly straightforward and need not be abstracted in this introduction. But the arguments for the boundary definitions are a bit tortuous, so it may be worthwhile to give an overview of them.

The line of argument for the becoming/being boundary may be summarized as follows:

- (1) Entry into the class of human beings is a process.
- (2) The entry process is at least in part a biological one.
- (3) The completion of the biological part of the entry process is a necessary condition for the completion of the entry process per se.
- (4) The biological part of the entry process is developmental in nature—the development of a set of living cells into a multicellular organism.

- (5) The developmental nature of the biological part of the entry process is best understood by way of an analogy with metamorphosis—that is, as the genesis, from the relatively undifferentiated mass of the fertilized ovum, of the fundamental morphology and histologically differentiated organs the organism is genetically programmed to develop.
- (6) The completion of what I shall call the metamorphic phase of generative development is a necessary condition of the completion of the entry process—that is, the becoming/being boundary cannot be put any earlier than this.
- (7) There are no good reasons for putting the boundary any later than this.
- (8) Therefore, the becoming/being boundary lies at the completion of the metamorphic phase of generative development.

The line of argument for the being/has-been boundary is parallel:

- (1) Exit from the class of human beings is a process.
- (2) The exit process is at least in part a biological one.
- (3) The completion of the biological part of the exit process is a necessary condition for the completion of the exit process per se.
- (4) The biological part of the exit process is disintegrative in nature.
- (5) The disintegrative nature of the biological part of the exit process is best construed as the functional disintegration of the organism as such—and not as the physical disintegration of its parts.
- (6) The completion of the disintegration of the organism as such is a necessary condition for the completion of the exit process—that is, the being/has-been boundary cannot be put any earlier than this.
- (7) There are no good reasons for putting the boundary any later than this.
- (8) Therefore, the being/has-been boundary lies at the completion of the disintegration of the human being considered as a biological organism.

Without further ado, then, I shall turn to the arguments for the becoming/being boundary.

II. THE BECOMING/BEING BOUNDARY

A caterpillar is not a butterfly. That is, the insect of which the caterpillar is the larval stage is not, at the larval stage, a butterfly—though one might, as indeed biologists do, speak of butterflies as “adult butterflies” in order to emphasize the fact that both caterpillars and butterflies are stages in the development of the same insect. Nonetheless we do not confuse insects which *are* butterflies with insects of the same species which *are* caterpillars. The latter are *becoming* butterflies no doubt, but they are not butterflies yet.

When can we say that the insect *is* a butterfly as opposed to a caterpillar (or rather, a pupa)? Surely we can say this only when the process of metamorphosis is complete—that is, when the relatively undifferentiated mass left by the disintegration of the caterpillar’s tissues has metamorphosed into the pattern of differentiation we call a butterfly.

Human fetal development is a process analogous to metamorphosis, and just as it makes good sense to speak of butterfly eggs, larvae, and pupae as distinct from the butterflies they become (to say that they are *not* butterflies) so too it makes sense to say that human eggs, embryos, and fetuses are distinct from the humans they become—that they are not human *beings*, only human *becomings*.

When can we say that the fetus is a human being rather than a human becoming? Surely only when its metamorphic-like process is complete—that is, when the relatively undifferentiated mass of the fertilized human ovum has developed into the pattern of differentiation characteristic of the organism it is genetically programmed to become.

That is the core of what I have to say about the becoming/being boundary. But it will require considerable elaboration and defense, and it may help to note, to begin with, that the definitional problem here is to clearly describe a concept of “being”—a static, or at any rate reasonably stable, “completed” condition. This is not to say, of course, that human beings are themselves static or unchanging. It is merely

to indicate that we are looking for the boundaries which define membership in the class of living humans—and which distinguish that class from the class of entities which might, but have not yet, become humans, as well as from the class of entities which have been, but are no longer, humans. In the case of the becoming/being boundary, then, we are looking for a point at which the entity is in some very fundamental sense “completed” as a member of the species. I shall argue in what follows that this point is reached when the organism (assumed, of course, to be living) has assumed its basic morphology, and when its inventory of histologically differentiated organs is complete. (It may be worth pointing out one subtlety here. I will argue that the process is complete for a given organism when *that* organism’s inventory of organs is complete—not when some standard list of human organs is filled. This is done to account for mutants.)

The rationale for this point as the becoming/being boundary begins with the straightforward observation that entry into the class of living human beings is a process. The claim that “entry is a process” means no more than that humans come into being *by way* of a process. This process is, at least in part, a biological one—involving at a minimum the production of an ovum in a suitable environment for parthenogenesis or cloning, and typically the production of both ovum and sperm, together with the processes necessary for their union. Whatever else we may want to say about this process of entry, we have to concede, surely, that the completion of its biological aspects is a necessary condition of its completion per se. (Whether it is also a sufficient condition will be discussed later.) Thus it is clear that the becoming/being boundary cannot be put at a point prior to the biological completion of the process of entry.

The starting point of the process is not in dispute here, though to put it at conception would beg an important question. So assume that the process starts well before conception—say, with the production of the particular ovum which is to be fertilized (or perhaps “activated” in the case of cloning). The question to be answered, then, is: At what point do we have adequate reasons for saying that the process is biologically complete?

A standard answer is derived from the concept of a “life cycle.” The argument is that the life cycle of a human being begins at conception—

just as the life cycle of a butterfly begins with a fertilized egg, progresses through the larval and pupal stages, and culminates in the development of what is popularly described as a butterfly. The trouble with the caterpillar/butterfly analogy as proposed above—according to the life-cycle argument—is that it misleads one into thinking that entry into the *species* coincides with the end of metamorphosis. Quite the contrary: egg, larva, pupa, and butterfly are all stages in the development of *one* entity of *one* species; just as conceptus, embryo, fetus, neonate, infant, child, adolescent, and adult are all stages in the development of one entity of the species *homo sapiens*. “Being” a human thus begins at conception—at the beginning of the life cycle.

This is a rhetorically persuasive argument, but it contains both logical and empirical errors. The fundamental logical error can be seen most clearly by first considering the obviously fallacious syllogism (all too frequently taken seriously):

This conceptus is a being (i.e. is an entity and is alive).

It is certainly human (i.e. is of no other species).

Therefore, it is a human being.

The fallacy here is equivocation on the word “human.” As used in the premise it is an adjective—and as such applies not only to the conceptus but to any living part of a member of the species: human blood; human sperm. But as used in the conclusion, “human” functions as a noun meaning “member of the species *homo sapiens*.” A counterexample will suffice to make the point.

This sperm cell is a being (i.e. an entity and alive).

It is certainly human (i.e. is of no other species).

Therefore, it is a human being.

The fallacy in the life-cycle argument is not quite as blatant, but it is similar. From the premise that fertilization of the ovum produces a unique living entity which is a product of the species, it does *not* follow that that entity is a *member* of the species. It is just as possible to conclude that the entity produced by fertilization is one which will *become* a member of the species.

The empirical error in the life-cycle definition utterly destroys its plausibility as an account of the becoming/being boundary. Monozy-

gotic twinning can occur any time from the two-cell stage to about the fourteenth day after conception. And it is thought that most such twinning is not genetically determined.¹ What this means is that one cannot say at conception, even given complete knowledge of the genetic makeup of the conceptus, how many humans will develop from it. It surely will not do, therefore, to say that the process of becoming a human being ends at conception.²

But if not at conception, then when? Shall we say that the becoming/being boundary lies at the point where the number of embryos is irrevocably determined? Shall we say that the life cycle of a human being begins at that point? I think not—this time for purely conceptual reasons.

It has already been noted that there is no logical necessity in the inference from the premise that a unique, living, and human entity exists to the conclusion that that entity is a human being—i.e. a member of the species as opposed to an entity in the process of becoming one. So we are certainly not *forced* to put the boundary at the end of the twinning possibility. Indeed, I suggest that when we reflect on the nature of human development, the only point for the becoming/being boundary which makes conceptual sense is at the end of what might be called its metamorphic phase. Some detail will be helpful at this point.

1. See M.G. Bulmer, *The Biology of Twinning in Man* (Oxford, 1970), and relevant passages from Max Levitan and Ashley Montagu, *Textbook of Human Genetics* (New York, 1971). The importance of the issue of twinning was brought to my attention by James M. Humber's paper, "The Immorality of Abortion," presented at the Eastern Division Meetings of the American Philosophical Association in December 1973. It should be noted, however, that at least in terms of the arguments of that paper, Mr. Humber would apparently not agree that this problem is a significant one for the conception definition.

2. One can, of course, assert the contrary by saying that once conception occurs, nonbiological souls come into being, and that the number of souls thus brought into being determines (or corresponds to) the number of fetuses which will develop. One would then have to go on to identify the existence of the souls with the existence of human beings. But one can assert the contrary of any proposition whatsoever in this way—assuming the assertion is not self-contradictory. That is, one can merely invent an alternative. The question is, what *reasons* can be offered to support the truth of such an alternative claim? I shall assume here—and it is surely not an arbitrary assumption—that no philosophically defensible reasons can be found to support the "nonbiological soul" alternative in this context.

“Biological development” is a very broadly defined term. One writer says: “Development may be defined as the action of genes in: (1) creating a new organism from some part of a parent organism, (2) maintaining or increasing the size of a fully formed mature organism, and (3) repairing accidental defects or losses in an organism. . . .”³ It is clear that the first category above is the sort of development of concern to us here. Let us call it (human) *generative* development, to distinguish it from the other sorts, which are typically referred to as continuous development and regenerative development, respectively.

Human generative development involves four sorts of processes: (a) cell proliferation, in which the number of cells increases; (b) growth, in which there is an increase in the mass of the developing organism; (c) morphogenesis, in which progressive changes in form take place; and (d) histogenesis, in which cells specialize into tissues. Morphogenesis and histogenesis are often lumped together under the title *differentiation*.

Differentiation, cell proliferation, and growth are all involved in continuous and regenerative development as well as in generative development, of course. The continuous production of red blood cells throughout life is an example of histogenesis. Obviously, to speak of the sort of completion indicated by the becoming/being boundary is not to speak of the completion of such processes of maintenance and regeneration—however similar they are in kind to the processes of generative development. It is rather (at least in part) to speak of the completion of the process of the generation of a new (human) organism.

But what is the nature of this process, and when is it complete? While the distinction between the generation, maintenance, and regeneration of an organism is reasonably clear at the most abstract level, how is one to give it application in the case of human development? It is here that the analogy to metamorphosis is helpful.

In common biological usage, “metamorphosis” doubtless refers to the sort of transformations undergone by the developing butterfly—where there is first the generation of a free-living larval body distinctly different from the adult, then the de-differentiation of the tissues of

3. Nelson T. Spratt, Jr., *Developmental Biology* (Belmont, Calif., 1971), p. 5.

that body and the subsequent generation of the adult. But biologists who have addressed themselves to examining the nature of this process characterize it in a way which, without strain, fits human fetal development. Embryonic and metamorphic development are often spoken of conjointly.⁴ In fact, as one writer classifies types of metamorphosis, a distinct larval body is not required at all—and thus human generative development sits comfortably as a *type* of metamorphosis.⁵

Now it is clear that generative development has both what might be called *fundamental* aspects and aspects which are essentially refinements of or maturation of the basic structures of the organism. The neonate has a skeletal system of about 270 bones. "Fusion of some of these in infancy reduces this number slightly, but from then until puberty there is a steady increase . . . at puberty there are 350 separate bony masses, and this number is increased still further during adolescence. Thereafter, fusions again bring about a reduction to the final quota of 206. . . ."⁶ Similarly with gametogenesis. Oögonia in the female and spermatogonia in the male are present before birth, but their maturation into full-fledged ova (i.e. oötids) and spermatozoa only comes about at puberty. In the case of the lungs, the alveolar ducts are present in the fetus, but only after birth do the alveoli proper develop, and continue to proliferate well into the eighth year of childhood.⁷ Examples of such refinement and maturation of structures—undeniably a part of generative development—could be multiplied.

But the original analogy to metamorphosis is instructive here. Just as it is not the size of the entity, or whether its cells are proliferating,

4. *Ibid.*, p. 17; and the following: "Metamorphosis is a widespread developmental phenomenon which is usually associated with a dramatic change in habitat and consequent way of life. . . . Primarily it consists of the differential destruction of certain tissues, accompanied by an increase in growth and differentiation of other tissues. The phenomenon of regional growth and differentiation associated with local cell death in developing limbs comes into this category." N. J. Berrill, *Developmental Biology* (New York, 1971), pp. 423–424.

5. Spratt, *Developmental Biology*, pp. 283–284, quoting Weiss, *The Science of Zoölogy* (New York, 1966).

6. L.B. Arey, *Developmental Anatomy*, 7th ed. (Philadelphia, 1965), p. 405.

7. See J.B. Thomas, *Introduction to Human Embryology* (Philadelphia, 1968), p. 297.

which is at stake in our judgment that the pupa has become a butterfly, so too we are not concerned with various refinements, adaptations to environment outside the cocoon, and maturation which might take place in the butterfly's basic structure. Metamorphosis—at least in the sense relevant to drawing the line between pupa and butterfly—is complete once these basic structures are complete. Similarly for humans. Generative development in the form of refinements, adaptations, and maturation of the basic structures are not of concern in drawing the becoming/being boundary.

But what counts as the “basic structure” and when is its generation complete? This is probably a more difficult question empirically than it is conceptually. Conceptually, the answer is not hard to find. The metamorphic phase of generative development (i.e. the “fundamental” differentiation) is complete when (1) the organism has assumed its basic gross anatomical form, normal or not (by which I mean its basic skeletal structure, musculature, arrangement of organ masses, and distribution of tissues); (2) the organism's inventory (normal or not) of histologically differentiated organs is complete.

This is not, notice, a functional criterion so much as an anatomical one. That the developing embryo is “alive”—i.e. functioning as a biological organism—is assumed. The question is when, in the course of its development, we may say that its fundamental or metamorphic generative development is at an end.

It seems indisputable that the end cannot be put any earlier than the point described above. After all, if anything is basic to human generative development (beyond conception) it is the shaping of the formless mass of cells into the shape and general arrangement of parts which the continuous and regenerative processes of development will maintain. And an “organ” which is not histologically differentiated is no organ at all. I do not think anyone would want to hold that the generation of organs was not a part of basic generative development. So the boundary can surely not be put any earlier than the point I have described. And to put the point later than that—to require, for example, that the differentiation of the ciliary muscles of the eye be complete—stretches the notion of fundamental or basic structures beyond reasonable bounds. I do not mean to claim that the distinction between basic and nonbasic generative development is

conceptually crisp—such that, given any example of generative development, it could be unarguably classified in one and only one of the categories. I merely hold—and will argue below—that the distinction is clear enough for the use we need to make of it.

The empirical question, however, may be more difficult—or at least it seems so to a nonbiologist reading the standard sources. The completion of gross anatomical form is not much of a problem. That is virtually complete by the end of the third lunar month of gestation—so much so that aborted fetuses of that age can be used in place of cadavers to teach anatomy to medical students. “. . . [W]ith the aid of a simple magnifier, every gross anatomical detail can be seen.”⁸ Further changes in morphology (e.g. as late as those occurring during puberty) are either the regional growth of existing structures, or clearly in the category of refinements, adaptation, and maturation of those structures.

The histogenesis of organs is a more difficult matter. It is clear that very few organs are histologically differentiated at the end of the third lunar month. Indeed, development of the alveolar ducts and the formation of elastic tissue in the lungs occurs well into the sixth lunar month.⁹ Parts of the digestive system (e.g. esophageal glands) are defined even later.¹⁰ The timetable for these later developments is not terribly precise, and no doubt can never be, due to individual variations. But it seems true to say that the end of what I am calling the metamorphic phase of generative development can be put no earlier than the middle of the sixth lunar month of gestation and need not be put any later than the middle of the final month—generative development thereafter clearly falling into the refinement, adaptation, and maturation category. (The various skeletal rearrangements,

8. Hans Elias, *Basic Human Anatomy as Seen in the Fetus* (St. Louis, 1971), p. vii.

9. “Primary ossification centers of the pharyngeal arches appear . . . the circular ciliary muscles of the eye are differentiating. . . . The lumina of parotid and sublingual glands are established . . . primordia of Peyer’s patches appear in the ileum. . . . Development of the alveolar ducts including the formation of elastic tissue is prominent. . . . The hyaloid artery of the eye begins to degenerate.” J.B. Thomas, *Human Embryology*, pp. 280–281.

10. *Ibid.*, p. 297.

the myelization of neural tissue, the proliferation of alveoli, and gametogenesis are all clearly in the nonbasic category.)

Suppose, then, just for the argument, that we say that the metamorphic phase of generative development is complete at the beginning of the eighth month. Are we then in a position to defend the claim that such a fetus is a human *being* as opposed to a human *becoming*? Reasons have been given for the contention that the becoming/being boundary cannot be put any earlier than this—that is, that the completion of generative metamorphosis is a necessary condition for entry into the class of human beings. But is it also a sufficient condition? Are there good reasons for thinking that the completion of the metamorphic phase of generative development is enough to count as crossing the becoming/being boundary? I think there are good reasons—conclusive ones in fact—but they are of a negative sort. That is, I think the reasons consist in there being no good reasons for requiring anything further by way of a condition. The clearest way to show this is by dealing with some obvious objections to the metamorphic definition as here proposed.

III. OBJECTIONS TO THE METAMORPHIC DEFINITION

Imprecision

It may be argued that the obvious imprecision in the timetable of metamorphosis is intolerable, as one cannot know in advance—at various points in the last few months of gestation—whether, for example, a particular abortion will be homicide or not.

The reply to this objection may be brief. We are faced with many such uncertainties in both the law and morality. Often we have to deal with a process and need to know precisely when it was “complete,” but find the difficulties nearly insuperable. Consider the notorious difficulties of distinguishing an attempted crime (an indictable offense) from the mere preparation to attempt it (which is not an indictable offense).¹¹ Such problems cannot be solved, they can only

11. See, for example, a standard hornbook on the substantive criminal law: Wayne R. LaFare and Austin W. Scott, Jr., *Handbook on Criminal Law* (St. Paul, 1972), pp. 431–438. For a review of some of the cases and comment on the

be handled. And in the case of the definition of "human being," *if it is to figure in the administration of a stringent prohibition of homicide*, it seems reasonable to adopt an empirically conservative presumption. If basic, generative differentiation has ever been known to be (or can reasonably be thought to have been) complete by the end of the first week of month seven, then one might invoke the presumption of homicide for the destruction of any fetus reasonably believed to be in or beyond the seventh month of gestation. Or one might want to adopt a series of increasingly strong standards of care, beginning at the latest point at which the process can be guaranteed to be incomplete.¹² In any case this is a practical problem of a sort endemic to law and morality, and it is safe to say that the leading alternative candidates for the becoming/being distinction (i.e. conception, viability, and the development of personality) are also subject to it. It cannot, therefore, constitute any special objection to the metamorphic definition.

Mutation and Arrested Development

A critic may want to know more, however, about how the definition handles cases of mutation and arrested development. What about the fetus which develops no limbs, or only one kidney, or a heart with only three valves?

Here it helps to remember that the metamorphic definition—beyond requiring genetic material from the species—is phrased in terms of the development of each individual. Whether that individual has a genetic anomaly which causes a mutation in form or organ inventory, or whether environmental factors put a premature end to development is irrelevant. If the fetus (mutant or not) dies or is killed before the completion of the metamorphic phase of *its* generative development, then what has died or been killed is a human becoming. If the fetus survives, and the process of differentiation is complete, yet the fetus is not normally formed, then what lives is a non-normally formed

philosophical aspects of the problem, see my article, "Criminal Attempt and the Theory of the Law of Crimes," *Philosophy & Public Affairs* 3, no. 3 (Spring 1974): 262–294.

12. The Supreme Court has done something similar in its recent abortion decision. See *Roe v. Wade* 410 U.S. 113, 41 LW 4213 (1973) at 4214.

human being. If the fetus is born prior to the completion of the process, but given the proper environment, can survive while the process continues to completion, then what has been born is a human becoming. It should be noted that none of this implies, by itself, the existence or nonexistence of specific duties toward such fetuses. The morality of the treatment of fetuses of various sorts and in various stages of development is a matter for further argument. It is no objection to the metamorphic definition to show that it does not settle such matters.

Alternatives to the Metamorphic Definition

The first two objections aside, there may be some remaining feeling that the choice of the metamorphic definition is as arbitrary as several other alternatives. Even if conception and the terminus of the twinning possibility have been ruled out, why not choose the concept of viability—on the grounds, perhaps, that a human being is not a biological parasite, but that the fetus is just that until the point of viability? Or why not choose quickening or live birth or the development of personality? To relieve this dissatisfaction, it will be necessary to say a few words about some of the other standard candidates for the becoming/being boundary.

The viability alternative is unsatisfactory. It confuses a criterion with a definition. Viability is not a *definition* of “human being.” One can, after all, have a nonviable (but temporarily alive) human being. Viability is rather, in fact, a rough *criterion* for the completion of the process of metamorphosis. Viability (outside the mother’s body and outside mechanical facsimilies of it) coincides—roughly—with the end of basic histogenesis as here described.

Other alternatives to the metamorphic definition have even less plausibility. “Quickening” has nothing to recommend it even initially—unless it is confused with viability. The point of “live birth” is flatly arbitrary, bearing as it does no necessary relation to properties of the fetus. It has some advantages as a legal device for fixing age, but beyond that, has nothing to recommend it.¹³ And the development

13. That is, there is nothing to recommend it as a becoming/being boundary. As a moral distinction based on the fact that the neonate immediately begins “to play an explicit role within the social structure of the family and society”

of "personhood," as a definition of human being, only has interest if one is singlemindedly trying to build up a definition which will yield "rights to life"—where such rights are understood to arise only from the claims one agent may make on another. It taxes the concept of membership in the species too far to say that a fourteen-year-old, so catastrophically deficient as to warrant the claim that he or she is not a "person," is not a member of the species.

The Moral Emptiness of the Definition

But then, it may be urged, one has abandoned any attempt to make the becoming/being boundary a moral divide. One can understand how quickening might be held to have characteristics relevant to a moral boundary—for it has a psychological impact on the pregnant woman and others. Similarly with live birth and the development of personality. But "the end of the metamorphic phase of generative development" does not seem to capture any morally significant distinction. And the resistance to adopting a morally empty definition, given our actual use of rough and ready becoming/being boundaries as moral divides is strong. As Tooley and others have argued, if the legitimacy of moral prohibitions and permissions (say, with regard to killing) are going to rest on whether or not the victim has crossed the becoming/being boundary, then the drawing of that boundary must be done in terms of characteristics relevant to the moral justification of those prohibitions and permissions.¹⁴ This is an important line of argument, so I want it to be clear why I reject its applicability here.

In the first place, I think we may plausibly reject quickening and live birth as candidates for the sort of moral divide at stake here. We are, after all, talking about *duties* not to kill, and the sort of psychological pulls created by these two events (aside from the fact that not every parent will feel them) are just not the sort of grounds advocates of a morally relevant definition are interested in. They are interested

there may be more to say for it. See H. Tristram Engelhardt, Jr., "The Ontology of Abortion," *Ethics* 84 (1974): 217-234, especially pp. 230-232.

14. See Michael Tooley, "Abortion and Infanticide," *Philosophy & Public Affairs* 2, no. 1 (Fall 1972): 37-65.

in justifying a right *in the victim* not to be killed—a so-called right to life.

Now if one tries to derive the moral rules concerning homicide from special rights to life possessed by the victims and wants to show that those rights to life are derived from some characteristics which define the victims as human beings, then the metamorphic definition is indeed beside the point. So, I believe, are all other nontheological definitions except personhood. The question really is, then, why not adopt personhood as the becoming/being boundary? Even if it leads to unpleasant conclusions such as a failure to rule out infanticide, at least it marks a moral divide of major proportions. Persons—more exactly, self-conscious subjects of experience—can value themselves. And in just the same sense in which my values for my act *A* support the rationality of that act *A*, so too another person's values *against* (my act) *A* support the rationality of (my act) *non-A*. Thus there is one clear sense in which persons can make claims on us which non-persons cannot make. And since the making of such claims has an obvious application to the question of homicide, it is tempting to try to base one's account of the morality of homicide on such claims.

But I think it is not usually recognized just how unsatisfactory this whole approach is. For one thing, though an obviously sound basis for moral argument, it is a very slender reed on which to hang the whole analysis of homicide. To suppose that all our duties not to kill come from the victim's *rights* (to life, liberty, or whatever), and that those rights are grounded in the victim's ability (and title) to claim certain acts and forbearances from others, is to put oneself in a very awkward position theoretically—not to say morally. What account is one to give, then, of a parent's duties to his or her infant offspring? What account is one to give of our duties not to kill the sleeping? Or temporarily comatose? Or our duties to resuscitate those who have drowned? One is forced, on this account, either to deny the existence of such duties or to construct an account of how such duties can arise from counterfactual conditions (i.e. if *B* were awake, or at the age of reason, or alive again, he would lay claim on me for *X*).

Surely either of these positions is implausible. The counterfactual account is an awkward contrivance in many of these cases. But beyond

that, both alternatives ignore some obviously sound lines of moral argument which derive duties from considerations which begin with the *agent*, rather than with the one acted upon. A duty not to kill (or a duty to rescue) may be justified by reference to the consequences for the agent or society. It may be justified as an entailment of the agent's role (parent, doctor, friend). Or it may be justified as a requirement of those patterns of life or character traits of which we can justifiably approve, morally. None of these justifications makes essential reference to the victim's ability and title to lay claim to the duty.

Now I am not suggesting that such agent-based approaches can, by themselves, be any more adequate than the victim-based approach. A general account of the morality of killing which ignored the victim's claims on the agent would be indefensibly incomplete. But so is an account which ignores the agent-based approaches. And once the need for both sorts of approaches is recognized, the attempt to rig a definition of "human being" along the lines suggested by *any* single line of argument (whether victim-based or not) seems arbitrary in the extreme. There can, for example, be no a priori guarantee that the range of entities protected by duties generated from agent-based approaches will coincide exactly with those protected by duties generated from victim-based approaches. So at the least it is certainly an invitation to question-begging to force the terms "human being" and "homicide" into the area circumscribed by the victim-based approach.

Further, of course, the question of homicide not only involves threshold problems (i.e. whether the victim is a human being or not). It also involves giving a rationale for retaining or rejecting all the intricacies of homicide law—the grading of various sorts of homicide, the exculpatory claims we recognize, and the category of justifiable homicide. Any "right to life" which could conceivably be encapsulated in a definition of "human being" would prove an infertile ground indeed for these matters. Consider: appeals to personhood are of no avail in explaining the distinctions we draw between deaths produced by tortious negligence, criminal negligence, and premeditated acts of murder. Human victims of each have, one assumes, an equal "right to life," and surely, *with respect only to that right*, no less a claim on their fellows for reasonable care as for nonmalicious conduct.

It is, of course, possible to build up an account of the details of

homicide law by reference to other principles, using the “right-to-life” notion merely as a starting point. But then one must acknowledge, surely, that the “right to life” is itself very nearly vacuous, morally. It functions as nothing more than a general presumption against a certain restricted class of morally problematic killings, and even then it is not relevant to deciding many of the questions we need answered about homicide. This, together with the difficulties of even explicating any morally relevant definition of the “point of entry into humanness” shows, I think, that the objection of vacuousness against the metamorphic definition is without much force.

Indeed, I reiterate that the primacy of the right-to-life line of argument is a snare. A much more straightforward, and thus conceptually clear, approach is simply to ask what presumptions against the taking of life there are, and why, and under what conditions those presumptions may be overcome. A consideration of right-claims made by one agent on another will be a part of this approach, but it is clear that the approach will not be limited to such considerations. Presumptions with regard to the taking of all lives (vegetable, animal, human, potential, or actual) will be confronted directly—not through a mystifying (and doubtless largely self-serving) thicket of special rights definitionally borne by human beings.

This approach to the morality of homicide seems to me to offer more hope of productive, reasoned discussion than do the usual arguments. It will not be easy to specify the grounds for or against a strong presumption concerning the homicide of the fetus of eight months as opposed to a weaker presumption, or none at all, against feticide prior to eight months. But at least the need for argument and the general range of relevant considerations will not be obscure. One may want to begin with a consideration of the prohibition of homicide in the case of healthy adult victims. One would ask for the justification of the prohibition and for the justification of the various exculpatory claims we allow (or ought to allow). One would then work out to threshold questions, such as abortion and euthanasia, in stages, asking the same questions for each stage. Such a process would be uncomfortable, because it would call into question one of our most central and deeply felt moral principles. But unless wisdom profits from evasion, this is exactly what needs to be done. The definition of the becoming/being

boundary bears no a priori relevance to this sort of investigation. And if there is a cogent biological definition of the boundary—as I have argued there is—there is no point in resisting it for the purposes of moral theory.

IV. THE BEING/HAS-BEEN BOUNDARY

I said at the outset that the definition of “human being” had to separate not only “being” from “becoming” but also “being” from “has been.” I want to conclude by deploying an argument to do this—both to complete the promise and to underline my point about the proper approach to the morality of homicide. Given the fervor with which the definition of death is being discussed currently, the brevity of the argument to follow may be perceived as a fault. But I believe that, unlike the becoming/being distinction, the definition of death presents no serious conceptual problems. There are serious empirical problems associated with the clinical determination of when death occurs, and serious moral problems concerning the treatment of the dying and the dead, but those are separate matters. I shall comment on their relation to the definition of death as the argument proceeds.

On the view proposed here a human being is a biological organism, complete as a living “being” of the species when the metamorphic phase of generative development is complete. Death for such an organism is the same as for any other complex organism. It is a process. The process is, at least in part, a biological one. The completion of the biological part of the process is a necessary condition for its completion per se. This much I take as not needing argument.

I further take it that we may plausibly regard organic death as the completion of the biological part of the “exit process.” This introduces an apparent asymmetry into the account, for the becoming/being boundary was drawn in terms of structure, not function. But it should be remembered that the organic life of the developing entity was presupposed as a necessary condition of “human-beinghood.” It simply was shown not to be a sufficient condition. But just as organic life precedes the generation of the structures necessary for entry into human-beinghood, so too death precedes the physical disintegration of (most of) those structures. Since life is a necessary condition for biological entry into human-beinghood, its removal (death) is suf-

ficient for marking the completion of the biological part of exit from human-beinghood. The exit process, then, in its biological aspects, is to be construed as a loss of function, not structure.

The being/has-been boundary can thus not be put any earlier than the biological death of the organism. And I shall assume that human beings are mortal in such a way that there is no question but that biological death is a *sufficient* condition for marking the being/has-been boundary. I assume, in particular, that consciousness does not persist beyond organic death.

The interesting question is, of course, What counts as the death of a human being considered as a biological organism? Clearly, parts of an organism may die without bringing about the death of the organism as such. Organisms may lose parts (limbs or organs) and continue to function organically. They are not "partially dead" for that reason. They are simply organisms of a certain type without certain parts. Further, organisms may lose functions necessary to their survival. If these functions are provided mechanically, and thus the organism survives as an organism, it is not dead, it is simply an organism kept alive mechanically.

The biological death of a human organism may be quite straightforwardly described: a human organism is dead when, for whatever reason, the system of those reciprocally dependent processes which assimilate oxygen, metabolize food, eliminate wastes, and keep the organism in relative homeostatis are arrested in a way which the organism itself cannot reverse. It is the confluence of these and only these conditions which could possibly define organic death, given the nature of human organic function. Loss of consciousness is not death any more than is the loss of a limb. The human organism may continue to function as an organic system. Further, though the loss of one vital function (say loss of the capacity to eliminate wastes) may inevitably *bring about* death, it does not constitute death by itself. Nor would we even say that an arrest of *all* the vital functions, in such a way that the organism *itself* could "restart" them, was death. (Consider the legal fate of one who maliciously intervened to prevent the "restart." Surely we would regard such a person as a murderer, and we would not be speaking metaphorically. On the other hand, when an organism has failed in such a way that it cannot restart its organic

processes, *but could be resuscitated by someone else*, what would be the legal fate of one who maliciously refused to resuscitate? Surely not an indictment for murder.)

Now it may be objected that requiring the confluent cessation of *all* the organic functions mentioned is too strong. First, they usually do not cease simultaneously, and second, it would be somewhat strange to withhold the judgment of death from an organism whose sole remaining organic function was some waning remnant of the digestive process, such as the action of enzymes in the intestines. True. But the definition proposed here does not entail such a result. Death is defined as the conjoint (not necessarily simultaneous) cessation of *the system* of those reciprocally dependent processes which assimilate oxygen, etc. Some of these processes involve the production of biochemical agents (e.g. enzymes) which, as to their continued existence and operation, are then relatively independent of the processes which produced them. But the continued action of such agents, in the absence of the process which produced them, cannot properly be considered the continuance of the process. It is rather the action of isolated remnants of a process which has itself disintegrated. There are many such events which continue as artifacts of vital processes after death. A cell may live, though the organ of which it is a part is dead (i.e. no longer functions as an integrated subsystem of an organism). An organ or tissue may remain functional for days after the death of the organism as a whole (as with the cornea or blood removed from the body or skin kept protected from bacteria). None of these events embarrass the definition of death given here.

It should be emphasized, however, that this definition of death is to be sharply distinguished from the notion of a clinical criterion for the death of a given individual. When we may correctly say that an organism has ceased to function as an organism in the requisite sense is an empirical problem of considerable delicacy. Fortunately for moral purposes, the functional disintegration of the human organism (if not mechanically assisted) is marked by reasonably unambiguous clinical signs whose "appearance" (e.g. the registering of cardiopulmonary failure) takes a relatively short duration. So no one exercising reasonable care is likely to have to rush the determination. (Certain emergency situations are, of course, exceptions.)

Where mechanical assistance is provided to maintain organic function, the implications of the definition of the human being/has-been boundary are fairly clear. One whose heart no longer functions and who is kept alive by machine is just that—a human being whose heart does not function. One who, after a massive accident, has a flat electroencephalogram and no spontaneous respiration, heart activity, or kidney function, and whose organs are bypassed or kept functioning by heroic medicine is just that. The definition makes no reference to the “higher” functions characteristic of humans or to how organic function is maintained. (After all, in the ninth month of gestation, not very many “higher” functions are going on, and the fetus functions as an organism partly by virtue of assistance provided by the mother’s body.)

This is, surely, not only a common-sense view, but one which faces the moral problems raised by heroic medicine and euthanasia directly. The moral question here is not whether the permanently comatose are “really human.” The question is, Under what circumstances ought one to use heroic measures on humans who would otherwise die, and once in use, under what circumstances may they be withdrawn? Similarly for questions of “positive” euthanasia. Much clarity is lost, I think, by organizing inquiries into these matters in terms of a definition of “human being” which settles the issues. Such definitions merely push the important questions back one notch (or worse, allow people to evade them), and inevitably seem ad hoc in nature.

Locutions such as “brain death” are thus misleading when construed as definitions of death. Brain death is not a definition of death, nor even a criterion of death. It is merely a criterion for deciding when coma is irreversible.¹⁵ The moral question, accurately put, is, What should be done with human beings who are in irreversible coma?

There is considerable pressure to resist this conclusion and to allow physicians to pronounce death upon a finding of irreversible coma.¹⁶

15. The Harvard Medical School panel charged with defining “brain death” conflates these questions misleadingly. See their report in Henry K. Beecher, *Research and the Individual* (Boston, 1970), pp. 311–319.

16. As recommended by the Harvard panel, *ibid.*, and as is beginning to get legal recognition, both in cases and in statutes. See, for example, the Kansas statute defining death, reprinted in Jay Katz, *Experimentation with Human*

The motives behind the move are not hard to discern. Beyond a point which can be specified empirically with some accuracy, hope for bringing the patient back to any form of consciousness—no matter how rudimentary—is simply gone. The brain literally liquifies. And even with the most sophisticated mechanical aids, the other vital organs begin a slow but certain course of degeneration. Leaving aside the desire of some for organs suitable for transplantation, it is an enormously expensive and futile effort to keep such hopelessly comatose patients alive.¹⁷ To be able to pronounce them dead would be a great convenience. It would eliminate any legal hazards involved in “pulling the plug” (for if such patients are regarded as living, turning off the respirators or other devices already in use amounts to active, rather than passive, euthanasia—to killing rather than to letting die). There are, in most cases, no legal obligations to begin such treatment (no legal duty to rescue); but there are often moral obligations, because it is often not clear before the efforts are made whether or not the patient is in irreversible coma. The irony is that once treatment is begun, there is often a legal obligation to continue, although there may be no moral obligation to do so.

Rigging the definition of death to solve this problem, while tempting, is an avoidance of the real issue. The real issue is whether and, if so, when it is moral to give up trying to prolong the patient’s life. Putting this question in terms of euthanasia or even “letting people die” is a misleading sensationalization of the issue. Euthanasia is certainly an important moral question in its own right, but the typical medical situations—at least the ones in which the temptation to bring in the definition of “human being” arises—are those in which efforts to prolong life are underway, and the question is whether it makes sense to go on with them. “Giving up” is not always irrational or

Beings (New York, 1973), p. 1085, and also the discussion of cases, pp. 1076–1077, 1102–1104.

17. For the presentation of a startling argument that we need to pronounce death in these cases precisely so we can *not* pull the plug but repeatedly “harvest” this new sort of corpse—for the blood it continues to produce, as an experimental object, as a training object for medical students, etc., see Willard Gaylin, “Harvesting the Dead,” *Harper’s*, September 1974, pp. 23–30.

immoral—and certainly not always illegal.¹⁸ It seems best to face this problem directly—by defining when it is permissible to give up life-saving efforts—and not to evade the problem by introducing an ad hoc definition of death.

The being/has-been boundary thus should not be, by itself, a moral divide any more than the becoming/being boundary is. People live, but sometimes in such hopeless conditions that one may morally and legally give up trying to save them. People die, but sometimes can be revived. Their death does not in itself relieve us of moral obligations toward them.¹⁹ The reversibility of death is more likely the

18. It has been argued that what I have called “giving up” should be regarded in law as a nonculpable *omission*. See George P. Fletcher, “Prolonging Life,” *Washington Law Review* 42 (1967): 999. It is a persuasive argument.

19. Consider the astonishing case reported by Beecher, *Research and the Individual*, p. 160, n. 8:

A 5-year-old boy, for example, was submerged for 22 minutes in a Norwegian river at a temperature of -10°C . Before he went under, he was seen in the water clinging to the ice. Doubtless his body temperature rapidly fell during this period, and the resulting hypothermic state probably accounts for his survival. Although the boy seemed to be dead, with blue-white skin and widely dilated pupils, he was given mouth-to-mouth insufflation. The mouth and pharynx were filled with vomitus. This was partially cleared. No pulse was felt. The trachea was intubated, the airway aspirated, artificial respiration instituted, and external heart compression started at once and continued on the way to the hospital. On arrival, there was some evidence of peripheral circulation. The ear lobes became pink. The heart was pricked with a needle and epinephrine and procaine were administered, without apparent result. Blood was withdrawn for typing and for determining the extent of hemolysis. Two and one-half hours after submersion, the heart started to contract spontaneously. Chlorpromazine was administered in an effort to improve the peripheral circulation. Gaspings now followed and soon became normal, but in an hour pulmonary edema appeared. Lanatoside and theophyllamine and morphine were given to control it. Three more pulmonary edema episodes ensued. An exchange transfusion was given to eliminate the free hemoglobin and potassium. Respiratory failure occurred five times in the next 24 hours. Hydrocortisone, antibiotics, heparin, and chlorpromazine were given. He was transfused. Examination two days after the accident showed no pupillary or corneal reflexes and no reaction to painful stimuli. On the fifth day, these signs returned. In a week, the boy began to swallow and to cough. On the tenth day he could obey simple commands, recognize his mother, and say “Yes,” or “No.” The next day he began to shriek and became restless and unconscious. Except for the brief period mentioned, he was unconscious for about six weeks. The agitated period lasted 14 days. He seemed to be decerebrated. Gradual improvement followed, but he appeared to be blind. Six weeks

moral divide. But even irreversible death does not (under our ordinary convictions) mean we can do just as we please with what remains—e.g. the estate; the body. The morality of dealing with the dead, whether reversibly dead or not, is a matter for further argument. It is not settled by this definition of death.

Bizarre questions may be raised, of course. Is a human brain separated from its body and kept “functioning” a human being? (Assuming that the removal of limbs or eyes or heart and lungs would still “leave” a human being.) I admit to being at a loss for a reply to such cases, let alone an answer.

But the inability of a definition to settle bizarre cases need not be considered an overwhelming defect. Bizarre cases can often be settled only by equally bizarre definitions. The definitions proposed here—for both the becoming/being and the being/has-been boundaries—make good sense conceptually, are sufficiently clear for moral purposes, and direct our attention to the moral issues surrounding homicide in a productively direct way. That much, it seems to me, is enough to expect from definitions.

To summarize the conclusions, then, from the somewhat tortuous path just trod: I have argued that

- (1) There are rationally preferred choices for both the becoming/being and being/has-been boundaries, drawn in purely biological terms. The former boundary lies at the completion of the metamorphic phase of generative development; the latter at the functional disintegration of the human being considered as a biological organism.
- (2) Neither of these boundaries is, by itself, a moral divide.

after the accident his mental condition improved. He began to speak, but still seemed to be blind. A week later, his vision began to return. On discharge, two-and-a-half months after the accident, he behaved like a normal child, except for a little ataxia. Six months after the accident, his mental condition was almost normal for his age, although he was still clumsy, and peripheral vision was reduced. Neurologic examination, including an electroencephalogram, was normal. By the usual clinical standards, he behaved as a normal child.

- (3) Each of the boundaries is precise enough for use as a moral divide if further argument establishes the legitimacy of it.
- (4) Such further argument cannot reasonably be only of the “victim’s right-to-life” variety.
- (5) As it turns out, on the abortion question, the United States Supreme Court’s advocacy of graduated stages of state interest fits the becoming/being boundary reasonably well.
- (6) “Brain death” is neither a definition of, nor a criterion for, the being/has-been boundary.

Doubtless other conclusions are implicit in the arguments. For the moment I content myself with these.