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In Defense of Whole-Brain Definitions of Death

by

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I.

The primary thesis that I shall undertake to defend is this: All functions of the entire brain must be irreversibly lost in order for a (neurodevelopmentally mature) human being to be dead. This is, by some lights, a remarkable undertaking. Robert M. Veatch, for example, finds such an undertaking to be literally incredible, for he imagines that, far from *defending* this thesis, no one really *believes* any such thing.¹ According to Veatch, the "whole brain definition of death" (WBDD) so construed² as well as related whole-brain definitions have sustained irreparable conceptual damage at the hands of their critics and, hence, ought to be discarded. But the death of whole-brain definitions of death has been grossly exaggerated. I intend to argue that, contrary to appearances, (i) critics of WBDsD, including Veatch, D. Alan Shewmon, Michael Lockwood, and John H. Sorenson, have not presented an even remotely plausible case against their conceptual viability and (ii) the alternative ("higher-brain-oriented") definitions of death (HBODsD) advanced by Veatch, Shewmon, Lockwood, Sorenson and others are so defectively conceived that *even if* WBDsD were in conceptual disarray, we would have no good reason to adopt any extant higher-brain-oriented definition alternative.

II.

The fundamental conception of death delineated in the Uniform Determination of Death Act targets "irreversible cessation of all functions of the entire brain stem," as a sufficient condition for human death.³ What, precisely, does it mean to say that "all functions of the entire brain" have ceased irreversibly? Veatch appears sympathetic to the idea that *brain* functions can include the functions of certain isolated nests of neurons. Commenting on a quote by neurologist James Bernat⁴, Veatch states that, "The idea that functions of certain 'isolated nests of neurons' can remain when an individual is declared dead based on whole-brain-oriented criteria certainly stretches the plain words of the law that requires, without qualification, that *all functions of the entire brain* must be gone."⁵

Is it the case, as Veatch claims, that Bernat has stretched the plain words of the Uniform Determination of Death Act? According to Veatch, Bernat has introduced some sort of "qualification" that unduly restricts the plain words of the law. But has he? Not by my lights, for it appears clear to me that functions of *isolated* nests of neurons are not brain functions at all, just as isolated nests of living cells do not (and, in fact, could not) mediate any bodily functions in the absence of a living body.

Veatch is committed to the view that the irreversible cessation of all higher brain functions is sufficient for the death of mature human beings. Now if Jones is dead then it appears that, according to Veatch, what is left (although perhaps in name only⁶) is Jones's *dead body*, unless Veatch is committed to a view of death (a view that is apparently affirmed by John H. Sorenson⁷ in which it is coherent to speak of Jones the human being as being dead but of Jones's body as continuing to live.⁸ If this is Veatch's view then while alive, both Jones and his body are alive. But is this what Veatch really means to say? Is, for example, Jones's living body a *human* organism? If it is not, then what sort of organism could it possibly be? Its phenotype and its genotype are, after all, clearly human. But if it is a human, and if it is a human distinct from Jones (call it Jones*), then while

alive it appears that Jones was in fact a composite of two humans: Jones the human being and Jones*, the human organism.

In order to avoid the sorts of complications suggested above⁹, let us suppose that what Veatch means is that if Jones dies, so does his body, i.e., that there is no living organism called *Jones's Body* that is somehow distinct from *Jones*. Then, given the differential death rates of different tissues after organismic death, we would expect to find some living cells amidst all those cells that once (but no longer) composed Jones's living body. But these living cells do not subserve any *bodily* functions; for to subserve a bodily function is to subserve some function of a living body. No living body, no bodily functions, for *dead* bodies have *no functions* to be subserved.¹⁰

Similarly, dead brains have no functions to be subserved.¹¹ The WBDsD defender will, at this point claim that brains which boast only isolated nests of functioning cells are not subserving any brain functions at all, for there is no living brain present with any functions for these cellular processes to subserve. The burden of proof at this point appears to be on Veatch: Just what sorts of brain functions does he imagine such nests of neurons to subserve?

It would be a mistake to insist, without argument, that for a brain to be dead all of its parts must be dead. Veatch doesn't obviously fall for any such fallacy of decomposition but he skirts awfully close to this when criticizing defenders of WBDsD on the grounds that they have somehow compromised their position by accommodating some minimal amount of brain cell life in their conceptions of whole brain death. I conclude, therefore, that Veatch has failed to demonstrate that either Bernat or any other like-minded defender of WBDsD has anything to be ashamed of in holding that whole brain death is compatible with the presence of neuroelectrical activity generated by isolated nests of living neurons.

III.

According to Veatch, a satisfactory HBODD alternative to WBDsD would take the following form: "[O]ne is dead when there is irreversible loss of all 'higher' brain functions."¹² In agreement with Lockwood¹³ and Sorenson, Veatch considers "consciousness" to be an uncontroversial element in this proper subset of brain functions.

In order to simplify our discussion, I shall, in what follows, focus solely on Veatch's problematic understanding of consciousness as it relates to his version of the HBODD.

Veatch claims that judgments concerning the presence or absence of human consciousness can be made with "similar or greater levels of accuracy"¹⁴ than judgments concerning the presence or absence of brain death. An attempt is made to support this surprising claim by invoking the following three bodies of evidence: (1) "The literature on the persistent vegetative state repeatedly claims that we can know with great accuracy that consciousness is irreversibly lost."¹⁵ (2) "The AMA's Councils of Scientific Affairs and Ethical and Judicial Affairs have concluded that the diagnosis [of persistent vegetative state] can be made with an error rate of less than one in a thousand."¹⁶ (3) "In fact the President's Commission itself said that 'the Commission was assured that physicians with experience in this area can reliably determine that some patients' loss of consciousness is permanent.'" ¹⁷

Concerning (1): How precisely can we know this "with great accuracy"? Consider, for example, permanent persistent vegetative state (PPVS) patients. Given the stipulated *permanence* of this state, the patient who is accurately diagnosed with PPVS will die a PPVS patient. And given its purported *vegetative* nature, genuine PPVS patients will not display any behavioral indices which might signal the presence of consciousness. There is, therefore, simply no conceptual space in this context for one successfully to detect the presence of consciousness. *Contra* Veatch, the fact of the matter is this: If an alleged PPVS patient were conscious, we would seem to have no way to detect this. But if this is so, then regardless of what the literature "repeatedly claims," we have no good reason to follow it on this point.¹⁸

In point of fact, Veatch's selective canvassing of the neurology literature has failed to focus on a critical item in the persistent vegetative state (PVS) corpus, viz. the important and apparently dissenting (early) views of Bryan Jennett and Fred Plum, the neurologists who initially gave PVS its name.¹⁹ According to Jennett and Plum, "Initially the EEG [of PVS patients] may be isoelectric, but considerable activity and even alpha rhythm may be found once the state has lasted many months."²⁰ In fact, it is well

known that the EEGs of some PVS patients, especially later in their clinical course, are essentially normal.²¹ Given these bits of neurophysiological data and given the fact that Jennett and Plum are alive to the possibility "that a continuum must exist between this vegetative state and some of the others described"²² — most notably between PVS and *locked-in states* in which full-blown consciousness awareness coexists with extensive skeletal muscle paralysis — it is clearly premature at best to claim with confidence that, with regard to PVS patients, "We can know with great accuracy that consciousness is irreversibly lost."²³

Concerning (2): This is relevant to the present discussion only if the proper diagnosis of PVS is incompatible with the presence of consciousness in one who has been so properly diagnosed. But as noted above, this incompatibility has not been demonstrated, nor is it at all clear how it could be demonstrated.²⁴

The theoretical point at issue bears some further examination. There are, on the one hand, particular locked-in patients who exemplify full-blown subjective awareness; and there are, on the other hand, particular PVS patients who experience no phenomenal darkness. Now, Veatch (and almost everyone else in this discussion) would, it seems, like for us to believe that there are no graded, intermediate states. The claim simply put is this: Everyone who *appears* to be unconscious and who *appears* to be unarousable from this apparent state of unconsciousness by ordinary means either is in possession of full-bodied conscious awareness (and hence is locked-in) or is wholly unconscious; the graded levels of consciousness that apply to all those individuals who do not appear to be unconscious simply do not apply to those individuals who do appear to be unconscious. Jennett and Plum had properly resisted this outrageous dichotomy, but since the appearance of their seminal paper on PVS almost everyone else²⁵ has rushed to embrace it. Why?

One obvious answer to this question is as follows: To think otherwise would be to ensnare clinicians in a web of complexity and uncertainty that is repugnant both to those intellects which demand simplicity and to the exigencies of smooth clinical practice. Not surprisingly, the impetus behind this kind of answer can also be traced to Jennett and Plum: "[I]t seems wise to make an absolute distinction between patients who do make a consistently

understandable response to those around them, whether by word or gesture, and those who never do."²⁶ Nothing is said in defense of this principle except that "it seems wise." But wise from what standpoint? Surely not from the standpoint of the truth-seeking intellect to which Jennett and Plum were so careful earlier to draw to our attention; but, rather, from the standpoint of clinical expediency. What else is one to do knowing that something must be done, but not knowing the nature of those variables essential to sound decision-making in this context? Jennett and Plum's answer falls far short of being a paradigmatic deliverance of practical judgment; rather it is unreflective and incautious at best.

Concerning (3): *Of course* some physicians can reliably determine that *some* patients will remain unconscious until their deaths (consider, for example, some of those moribund terminally ill patients who, in virtue of some untoward developmental event, possess only a myelencephalon). But the real question is whether some physicians can reliably determine whether or not a significant number of patients diagnosed as being in persistent vegetative states are conscious.

IV.

When all is said and done, Veatch is not all that interested in assessing the degree to which one can make accurate loss of consciousness determinations, for his most fundamental concern is not a practical but a theoretical one, namely, a concern about what it is to be dead. As we have noted, his claim is that to be a dead human is to suffer the irreversible loss of a certain proper subset of brain functions, viz., higher brain functions. The technological feasibility of accurately discerning states of brain death so conceived is irrelevant to this theoretical claim. What then is Veatch's justification for the conceptual propriety of adopting this new, controversial conception of death?

The argument-sketch offered by Veatch (as best I can reconstruct it) goes something like this: Any conception of human death that neglects to take seriously the crucial role played by consciousness in human life appears, essentially, to be arbitrary. For instance, it appears to be an arbitrary assignment of metaphysical

priority in any conception of human death to assign, e.g., mere brain stem function such priority over mere spinal cord function. The only plausible nonarbitrary delimiter of human death is the presence or absence of the capacity for consciousness. And given that death is, in some important sense, irreversible, it is the irreversible loss of this capacity for consciousness that is the central feature of human death. Call this argument-sketch "VAS."

Veatch attempts to display the plausibility of VAS' conclusion by claiming that it is intimately connected with "classical Judeo-Christian notions that the human is essentially the integration of the mind and the body and that the existence of one without the other is not sufficient to constitute a living human being."²⁷ But this is a confusion. The dominant classical Christian conception of the soul-body unit has relied most heavily on Aristotelian-Thomistic hylomorphic schemes in which the *psyche* (or "soul") is thought to be the *form* of the body.²⁸ But clearly, what *we* mean by the term "mind" is not what *they* meant by the term "soul." According to both Aquinas and Aristotle it is possible to be ensouled but not minded. It is true that, according to all those adherents of hylomorphism of whom I am aware, no living body could exist uninformed and that a human body's form, even if it could exist independently of the body, would not then, in itself, constitute a living human being. The important point here, though, is this: It does not at all follow from widely embraced Christian variations on Aristotle's hylomorphism that being severely brain damaged and, in virtue of this, being permanently unconscious (or even irreversibly unconscious, if "irreversibility" in this context is indexed merely to the current level of technology) until death is incompatible with being rationally informed (and, thereby, rationally ensouled). I shall argue for this point in greater detail in Part VI.

V.

It might appear up to this point that I have rejected the HBODD only to have embraced the UDDA's²⁹ whole-brain definition in its stead. This appearance is misleading. I do not, in fact, embrace the UDDA's definition of death. Rather, I am, in this essay merely defending this conception of death (and variations on it)

against some of its most radical and vociferous critics. As noted in the opening line of Part II, the UDDA identifies death with irreversible cessation of all brain functions. If I, on the other hand, were to endorse any conception of brain death at all, I would find most plausible the thesis that the death of mature human beings is intimately tied to the loss of all brain functions. Obviously, I see a distinction between the notions of "loss" and "cessation" in this context. Prior to discussing this important distinction, I need first to say a few words about the notion of irreversibility, for I am also not convinced that any reference to the *irreversibility* of the processes in question is an essential constituent in a properly composed definition of human death.

David J. Cole, in his provocative and insightful essay, "The Reversibility of Death," eloquently expresses a core intuition concerning human death that *pace* Veatch is shared by, among others, Christian theists, viz. that human death is reversible.³⁰ The Christian tradition, for example, is essentially grounded in the resurrection of Jesus, the exemplar of that victory over death which is the hope of all Christian believers. Cole identifies such reversibility with our "ordinary" concept of death and, given this alleged commitment, avers that this ordinary concept is inconsistent with standard medical definitions which entail death's irreversibility.

Cole points out that the notion of irreversibility is ambiguous between what he calls "strong" and "weak" irreversibility, the former denoting processes which *cannot* be reversed and the latter denoting processes which are merely not now reversible. He argues that both senses of irreversibility as they are presently applied to the notion of human death pose insurmountable epistemic and moral problems and, hence, ought to be rejected. A protracted discussion of his arguments for these conclusions, although tempting, is beyond the scope of this essay.

I do, though, want to examine Cole's proposed characterization of the ordinary concept of death. According to Cole, "A being is dead if it both (a) does not currently display essential processes and (b) is incapable of resuming them itself in the ordinary course of nature conducive to its lifeform."³¹ Although Cole does not provide a perspicuous, satisfying explanation of how to understand this characterization, on its most straightforward reading I find Cole's

characterization deficient on several counts. I shall mention only two: First, Cole's definition of death does not capture what I take to be certain features of the ordinary concept of death that Cole appears to have overlooked, e.g., that a significant number of ordinary people have not died and returned from the dead a number of times. Consider an individual who is in asystole (and, hence, who does not currently display certain essential, specifically cardiovascular processes) and is resuscitated with assistance (e.g., with the help of cardiopulmonary resuscitation, CPR). Some individuals have been thus revived with CPR a number of times and it seems plausible to believe that many of these individuals would not have revived *without* this intervention and, hence, are properly characterized as being incapable of resuming these essential cardiovascular processes themselves. On Cole's conditions, such individuals would have actually died a number of times. But this would be anything but an ordinary way of understanding what is going on in these situations.

Second, condition (a) is ambiguous between essential processes (whatever precisely those are) that have merely ceased and essential processes that have been destroyed. This distinction can adequately be conveyed as follows: Take what appears to be a representative essential process, for example, those processes governing the functioning of the breathing centers in the brainstem. Suppose that person S is cryogenically preserved such that all functions of S's entire brain merely cease. It does not follow from this that such a state of hypothesized suspended animation (in which no brain processes at all are operative) constitutes a state of death. Thus, I along with a small but significant group of thinkers³² have come to reject the identification of irreversible cessation of all brain functions with the death of developmentally mature human beings, opting instead for a conception of human death that requires the destruction (or what I earlier called *loss*) of all functions of the entire brain, where such destruction is the end result of processes by which the structural substratum (i.e., the *matter*) that underlies the functional unity of the organism disintegrates in virtue of a loss of the organism's principle of organization (i.e., its *form*).

VI.

Veatch is not alone in advocating a significant alteration in brain death criteria based principally on philosophical considerations. One of the most provocative critics of WBDsD and a fellow advocate of a radical redefinition of death similar to Veatch's is physician D. Alan Shewmon, M.D.³³ Veatch and Shewmon are united in their advocacy for the position that not only PVS patients, but also certain advanced Alzheimer's patients are dead.

Shewmon is slow to ease the demented into the domain of the dead. He begins by mounting what he takes to be sound arguments for (i) why his conception of brain death constitutes death of a human organism, and (ii) why some PVS patients are, in spite of initial appearances, actually human cadavers. Only then does he address the vital status of the demented. We shall examine each of these arguments in turn.

Shewmon begins by invoking a number of concepts which he claims to have borrowed from Aristotle and Aquinas. Specifically, he discusses what he understands to be their hylomorphic schemes for conceptualizing living organisms. (A thorough discussion concerning whether or not Shewmon has done justice to the doctrine of hylomorphism is beyond the scope of this paper.)

Shewmon first asks us to consider a case in which a human person's brain and body are dissected apart — spatially disconnected one from the other — such that the brain is kept alive artificially in a fluid-filled vat (as philosophers are wont to have it) and the body is kept alive artificially by way of a sophisticated life support system.

According to Shewmon, the resulting envatted brain is identical with the live person prior to the dissection and the "body" is

clearly something more than a mere aggregate of individual fibroblasts and other types of cells[.] It possesses a certain degree of functional unity at the vegetative level. In other words, it is a vegetative organism in its own right, with its own substantial form. At the moment of separation from the body (now only the brain), this form became actualized from its previous virtuality in the spiritual soul, just as in the case of the fibroblast.

Now this brainless vegetative substance, which looks like a human body but is not, is exactly what one is dealing with in a case of brain death. The only difference is that, with the

latter, the agent which removed the brain was not a surgeon but nature. In our macabre laboratory, it is evident that the person will die, not when we disconnect the respirator from the vegetative human-looking organism, but when we disconnect the machines from the floating [envatted] brain. It should therefore be equally evident that, in the natural context, a person will die (and his spiritual soul will leave the body) the moment his brain dies, irrespective of whether the rest of the body maintains some vegetable integrity or not.³⁴

But why should we think this? First, it is crucial to point out that not only is the "body" being kept alive by artificial means in Shewmon's scenario, but the brain also. Thus, it does not appear that it is the *artificiality* of the life-sustaining mechanisms that is guiding Shewmon's intuitions here. Shewmon would draw the same conclusions, it seems, even if *neither* body nor brain required artificial life support.

Shewmon's dialectical strategy is curious: He intends to defend his position on brain death by invoking an odd methodological admixture derived from those philosophical strategies which have traditionally been employed by Aristotelean-Thomistic natural philosophers on the one hand and Parfitian metaphysicians on the other. A pure Aristotelean or Thomist would certainly be suspicious of Shewmon's appeal to contemporary Parfitian thought experiments (which even Shewmon calls "bizarre"³⁵) with their accompanying (apparent) confidence that imaginability is a reliable guide to possibility, a principle which Medieval natural philosophers (along with a few contemporary philosophers³⁶) would certainly have rejected. At any rate, in spite of this methodological tension, I shall next argue that even granting Shewmon's method of hypothetical and extraordinary cases, it is not at all obvious that Shewmon's conclusions follow.

Shewmon argues that the artificially sustained living body (ASLB) which results from the envatting of S's brain is merely a *vegetative* organism (what Shewmon has called a "brainless vegetative substance"³⁷) with its own substantial form, for "It possesses a certain degree of functional unity at the vegetative level."³⁸ One can, of course, agree that an ASLB "possesses a certain degree of functional unity at the vegetative level," and hence agree that it is a living organism but deny that it is merely a vegetative organism.³⁹

Might not an ASLB possess a *rational soul* rather than a mere *vegetative soul*?

One might advance the following two reasons for answering this question in the negative. First, one might think that because an ASLB is, as Shewmon describes it, a "brainless vegetable substance," it could not possess a rational soul. Although I intend to take up this objection in much greater detail elsewhere, I shall here say this much: First, contrary to Shewmon's use of terms, an ASLB is not obviously *brainless* — any more than Barney Clark died *heartless*, or any more than one who possesses two prosthetic arms is *armless*. If the notion of a brain is, as it appears to be, primarily a functional notion, then any material "thing" that functions as a brain in the biological economy of a living organism *is* a brain.⁴⁰ But if this is so, and if one of the chief functions of the brain is its role in mediating organismic unity, then an ASLB is not obviously a brainless vegetable substance.

Second, it is arguably the case that having a brain as a part is not a necessary condition for a live organism's being rationally ensouled. Consider, for instance, human zygotes and preembryos. Neither of these organisms, we are told, have brains as parts and both of these organisms, according to the dominant Christian tradition, are ensouled organisms. But if this is so, then Shewmon is simply mistaken in thinking that:

The notion that the brain is *the* crucial organ which determines the body's compatibility or incompatibility with the human soul is also perfectly consistent with the tradition of the Catholic Church regarding the baptism of two-headed infant "monsters." For centuries, it has been considered proper to administer two baptisms absolutely if the monster had two chests and heads. If there were two chests and one head, or one chest and two heads, there would be one absolute and one conditional baptism. Thus, even long before medical science clarified the respective functions of the heart and the brain, the Church had manifested its openness to the possibility that the brain alone could be the critical organ for determining the presence or absence of a human soul. If there should be two baptisms, then it also follows that death of one of the heads would constitute the death of a person, even though the body it was attached to remains alive (as his sibling's body).

The notion of brain death as death of the person is therefore perfectly in keeping with the Church's traditional

criteria for enumerating souls in the context of bizarre medical circumstances.⁴¹

To claim, as Shewmon does, that the brain alone is *the* crucial organ for determining rational ensoulment in the Catholic tradition based on her baptismal practices regarding birth defective infants is to confuse necessary conditions with conditions that are sufficient. All that the aforementioned example could plausibly be interpreted as showing is that having a live human brain as a part is a *sufficient* condition for possessing a rational soul, not that it is a *necessary* condition.

Third, one might argue thus (as van Inwagen appears to argue⁴²): An ASLB could *not* be a human person because the envatted brain which was formerly a part of the ASLB *is* a human person and it is not logically possible for both the ASLB and the envatted brain to be distinct persons who are identical with the pre-dissected person, for then two distinct persons would be (numerically) identical with a single person and that is impossible.

Here is an alternative way of stating the argument: Suppose that Jones at t_0 is composed of a body and brain, that at t_1 (where t_1 is later than t_0) Jones's brain is removed and envatted, and that Jones's body is kept alive using an artificial brain. Where is Jones at t_1 ? The absurdity comes in thinking that the very same being who was Jones at t_0 is, at t_1 two distinct beings, viz. an envatted brain and an ASLB, for surely one entity cannot be numerically identical with two entities.

Surely all of that is right. But why think that this is an accurate metaphysical description of the aforementioned dissection? Here are what I take to be two other genuine possibilities:

(i) The result of the dissection results in only one *scattered* person. Jones continues at t_1 to be identical with both his brain and his body (which are not distinct organisms). His brain and body may be biologically disconnected, but they are informed by one and the same soul. This suggestion is, as it stands, radically non-Aristotelean and non-Thomistic, at least as those positions have been traditionally understood, for without an organic unity which governs both Jones's body and Jones's brain, it does not seem that a single hylomorphic soul could inform them both (although perhaps a Cartesian soul could).

(ii) The dissection results in *two persons* one of which is distinct from Jones: Jones, who is now identical with the envatted brain and a distinct person, namely, and ASLB that is not merely vegetative (and not merely a heap of living and dead unicellular organisms), but that is informed with its own rational soul that is distinct from Jones's. Just as it is possible for an human (pre)embryo to be rationally ensouled but not presently able to cogitate, so too it seems possible that an ASLB, whose integrity is sustained through the workings of an artificial brain, is also rationally ensouled, although not by the same soul that ensouls Jones, the result being that this ASLB is a human being who is distinct from Jones.

VII.

Shewmon's argument for the conclusion that PVS patients are, in spite of initial appearances, human cadavers informed with vegetative souls depends, in part, on focusing upon that group of persistent vegetative patients who do not, and never will, possess a conscious mental life.⁴³ Call this set of patients "permanently unconscious PVS" (PUPVS) patients. These patients, according to Shewmon, are actually the cadavers of the human persons who they once were. But again, his argument for this conclusion is not compelling. For neither lacking cerebral hemispheres nor being such that one is permanently unconscious is sufficient for non-personhood given a plausible interpretation of, for instance, Aquinas's hylomorphism.

Consider a set of human preembryos which are frozen for purposes of experimentation and later are killed. These preembryos, prior to their freezing, neither possessed cerebral hemispheres as parts nor was there any moment in time at which they were conscious. Yet, at least a significant number of Christians, whether they be neo-Cartesians or Thomists (or something else), appear to have good reason for thinking that such live human preembryos are human persons.

One could, of course, reply that there is a serious disanalogy here, for it is the case that these preembryos possess at least a natural *potential* to be conscious. It is simply a matter of fact that they are

not and will never be conscious, whereas the PUPVS patient lacks even this natural potential for consciousness. In fact, this is how Shewmon does argue:

What is necessary for the human soul is not the actual functioning of the essential brain structures, but their natural *potential* for functioning. Someone who is asleep is not dead, even though the functions of intellect and will are suspended. This is because they are only temporarily interrupted; there is no *structural* damage to the neural substrate, rendering the brain intrinsically incapable of those functions....[A] brainless embryo is quite unlike a brainless adult, since the substantial form of the embryo makes its development always tend toward forming those brain structures essential for the operation of the intellect... [W]hen the critical areas are destroyed in an already formed brain, they cannot be regenerated, and the body is thereby rendered permanently incompatible with the human essence.⁴⁴

But is this so?

Here we must be very careful for surely if it is the case that human persons *do* survive the alterations that are characteristics of PUPVS, then PUPVS patients *do* possess the potential for consciousness because prior to succumbing to PUPVS, they were conscious. Consider in this light the following argument: Suppose that Jones is a human organism at time t_0 . Next, suppose that (in virtue of being rationally ensouled at t_0) Jones is engaging in conscious rational thought at t_0 . Further suppose that at time t_1 Jones lapses into a PUPVS state and that Jones at t_1 is the same organism as Jones at t_0 . If Jones possesses a rational soul, then it is a *necessary* fact about Jones that he possesses a rational soul (since the rational soul of a thing constitutes the essence of a thing). Therefore, if Jones possesses a rational soul at t_0 it is also the case that Jones possesses a rational soul at t_1 . And if Jones possesses a rational soul, then Jones possesses a natural potential to be conscious. Hence, if Jones possessed a natural potential to be conscious at t_0 , then Jones possesses a natural potential to be conscious at t_1 . Clearly Jones possessed a potential to be conscious at t_0 , for Jones (by supposition) was engaging in conscious rational activity at t_0 (such activity being

in accord with Jones's rational nature). Therefore, Jones (while in a PUPVS state) possesses a natural potential to be conscious at t_1 .

I am sensitive to the fact that this argument gives the distinct appearance of begging a number of questions. Perhaps it does (whatever precisely it means to "beg the question"). In any event, the argument does highlight one principal point of contention between Shewmon and myself: Shewmon believes that Jones at t_1 is not the same entity as Jones at t_0 , and I believe that this is false. In light of the fundamental nature of our disagreement, I here present a second attempt at mounting an argument against Shewmon: Jones was at one time a non-brained non-conscious person. Hence, being Jones is compatible with being a non-brained non-conscious person. Further, Jones who *was* a non-brained non-conscious person possessed (at that time) the natural potentiality for becoming a brained conscious person. This would have been true even if Jones were never to have become a brained conscious person. But if x has a *natural potentiality* to be y , then it is a necessary truth about x that x has a natural potentiality to be y . Hence, *if* Jones survives the alterations that result in a PUPVS condition, then PUPVS-Jones has the natural potentiality to be a brained conscious person.⁴⁵

Live humans, for example, (unlike rocks) possess the natural potentiality for sight, and necessarily so. Even a man who has undergone bilateral enucleation, or one who is congenitally blind, has this natural potentiality (i.e., even if one does not see after some time t or one does not see at all, the natural potential for sight remains). It is, I am claiming, a necessary truth about the kinds of things live humans are that they have the natural potentiality to see. It is, in short, a part of the essence of human beings that they possess just this sort of perceptual potency. Along similar lines, rational animals (i.e., human beings) possess the potentiality to be wise (even severely mentally retarded — or, more to the point, severely demented — humans possess this natural potentiality) and, in like manner, they possess it essentially.

VIII.

Shewmon next extends his account to include the severely demented Alzheimer's patient, i.e., one who has undergone the

destruction of those parts of one's brain which are essential for the proper functioning of one's intellect and will. In such cases, Shewmon asserts, only the animal soul, which earlier was merely virtually present in the spiritually ensouled organism, is now there present. Just as in the PUPVS case, Shewmon claims that the *person* does not survive this neuroanatomical insult, but only a "humanoid" animal:

Patients at this stage of the illness have sensory perception and can move around, but do not speak or show any evidence of intellectual understanding of their surroundings; their behavior is governed totally by primitive impulses. "Dementia" is really an excellent term for this state, since it indicates that the mind is no longer there. The body has been rendered incompatible with the human essence, so a substantial change must have taken place. The spiritual soul must have left the body, so that the person is now in the next life, while an animal which looks like the former person remains on earth.⁴⁶

Shewmon has adopted quite a curious stance here. Why does he think that the body of a severely demented patient "has been rendered incompatible with the human essence"? Does he really believe that no in-principle technological advance could possibly restore occurrent rationality to a severely demented human being or, perhaps, that even God could not inform that sort of a body with a rational soul?

Evidently he at least affirms the former belief, for he later argues that cerebral atrophy (a hallmark of certain forms of severe dementia) is "*intrinsically* irreversible; i.e.,...we can...rule out the possible development of some future technique of making the nerve cells regrow, or of transplanting nerve cells which will make the proper synaptic connections, etc."⁴⁷ His argument for this position depends on the following controversial assumption: The maintenance of S's identity from time *t* to later time *t** requires that S at *t** possess some of the same memories and basic personality structures as S at *t*. He adds that these features of one's identity are encoded in the patterns of one's neuronal connections and he thinks it impossible for

one's personality, for example, to be rewired into one's previously atrophied brain.

But surely it is Shewmon who is begging a critical question here, for there is good reason to believe that person S's persisting through time has nothing to do with S's personality or S's memory. Peter van Inwagen, for example, has forcefully argued that human organismic identity is sufficient for human personal identity.⁴⁸ I find his arguments there to be persuasive. Of course, I come to this debate with the prior convictions both that human embryos have no memory or personality at all, and that there is good reason to believe that they are persons and that they persist through time.

IX.

I have been arguing both that the arguments against the UDDA version of the WBDD put forth by thinkers like Veatch, Shewmon, Lockwood, and Sorenson are not successful and that the arguments presented in favor of HBODD alternatives likewise miss their mark. In light of this double failure and in light of the deeply counterintuitive consequences of this theory — e.g., in light of the fact that Shewmon's HBODD implies that some nursing home residents who are afflicted with Alzheimer's who move and vocalize and eat and sleep are actually human cadavers; or in light of the fact that, on Shewmon's view, some severely birth defective neonates are, contrary to all appearances, the gestational products of stillbirths — I recommend that this family of HBODDs of death be rejected. But as I've already stated, I do not thereby *advocate* the UDDA's particular conceptualization of whole-brain death. Rather, I have endeavored in this essay to accomplish the more modest task of defending such whole-brain conceptualizations of brain death against some of their most severe and provocative "progressively minded" critics.⁴⁹

References

1. Robert M. Veatch, "The Impending Collapse of the Whole-Brain Definition of Death," *Hastings Center Report* 23, no. 4 (1993): 18-24. "No one really believes that literally all functions of the entire brain must be lost for an individual to be dead." (p. 24).

2. There is a many-membered *family* of non-equivalent whole-brain definitions of death delineated in the Uniform Determination of Death Act (to be discussed below). I shall use the term "WBDD" to denote some member or other of this family, while referring to any specific member by description.

3. President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, *Defining Death: Medical, Legal and Ethical Issues in the Definition of Death* (Washington, D.C.: U.S. Government Printing Office, 1981), p. 2. The Commission's suggestion should not also be taken to provide a necessary condition for human death if it is true that human beings come into existence without brains.

4. James L. Bernat, "How Much of the Brain Must Die on Brain Death?" *The Journal of Clinical Ethics* 3, no. 1 (1992): 21-6.

5. Veatch (1993), 19.

6. Aristotle claimed that a so-called "eye" that is severed from the body is not an eye "except in name", for "eye" is primarily a functional notion and, hence, nothing is an eye unless it plays the proper functional role of an eye in the organization of a living organism. This requires that for something *x* to be an eye, *x* must be a genuine part of a living organism. Similarly, we might say, the so-called "body" that remains after an organism has died is not a body "except in name," for nothing is a body unless it, in like manner, is a part of a living organism. See Aristotle's *De Anima* Bk. II, ch. 1.

7. "The UDDA sets the presence of life above independent cellular activity or viability (even temporary) of any separate organs. But this level is so low that it perpetuates support of the body at the biologic, vegetative level by confusing it with the person or human being who has ceased to exist." (p. 236) John H. Sorenson, "The Determination of Death: The Need for a Higher-Brain Death Concept," in *Medical Ethics: A Guide for Health Professionals*, eds. John F. Monagle and David C. Thomasma (Rockville, MD: Aspen Pub., Inc., 1988) 234-48.

8. There exists the potential here for generating numerous other "dependent coincidence" puzzles which might further complicate the picture. Puzzles involving dependent coincidence are clearly explicated and engagingly presented in Michael Burke, "Copper Statues and Pieces of Copper: A Challenge to the Standard Account," *Analysis*, 52, no. 1 (1992): 12-17; and Mark Heller, *The Ontology of Physical Objects: Four-Dimensional Hunks of Matter* (NY: Cambridge University Press 1991).

9. One might not see this as a complication at all and, hence, one might not feel compelled to avoid it. This is the position taken by Michael Lockwood. Lockwood

explicitly embraces a view that is relevantly similar to this one in "When Does a Life Begin?" in *Moral Dilemmas in Modern Medicine*, ed. Michael Lockwood (Oxford: Oxford University Press, 1985), 9-31.

10. Veatch's (1993) confusion on these points is effectively illustrated by pointing out his allusion to "the cadaver's other bodily functions." (p. 18) In what sense can a dead "body" have bodily functions?

11. In fact, according to Peter van Inwagen, what we call "brains" - whether alive or dead - can have no functions at all for the simple reason that there are no brains. See his *Material Beings* (Ithaca: Cornell University Press, 1990).

12. Veatch (1993), 19.

13. See Lockwood (1985). Elsewhere, Lockwood has presumptuously gone so far as to state that, "[W]e now think of a human life as having ended when that part or aspect of the brain in which thoughts and feelings occur has been destroyed [.]" in "Human Identity and the Primitive Streak," *Hastings Center Report* (Jan-Feb 1995): 45. The "we" to whom Lockwood refers is made explicit in Lockwood (1985), viz. Those who possess "scientifically educated common sense." (p. 11) I cannot see that Lockwood's vision of common sense has yet achieved anything like widespread acceptance by the scientifically educated masses. In fact, it appears to be the view only of a very small, albeit vocal and growing, minority.

14. Veatch (1993), 20.

15. Veatch (1993) 20. Veatch finds some of these "repeated claims" in Ronald B. Cranford and Harmon L. Smith, "Some Critical Distinctions Between Brain Death and the Persistent Vegetative State," *Ethics in Science and Medicine* 6 (Winter 1979): 199-209; and in Phiroze L. Hansotia, "Persistent Vegetative State," *Archives of Neurology* 42 (1985): 1048-52.

16. Veatch (1993), 20. This statistic is taken from the Council on Scientific Affairs and Council on Ethical and Judicial Affairs, "Persistent Vegetative State and the Decision to Withdraw or Withhold Life Support," (p. 428) *Journal of the American Medical Association* 263 (1990): 426-30.

17. Veatch (1993), 20. Quotation taken from the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, *Deciding to Forgo Life-Sustaining treatment: Ethical, Medical, and Legal Issues in Treatment Decisions* (Washington, DC: US Government Printing Office, 1983), 177.

18. I argue more extensively for these points in my "Philosophical Reflections on Coma," *Review of Metaphysics* 47 (June 1994): 735-755.

19. Bryan Jennett and Fred Plum, "Persistent Vegetative State After Brain Damage: A Syndrome in Search of a Name," *Lancet* (April 1, 1972): 734-7.
20. Jennett and Plum (1972), 736.
21. F. Dranze, J.F. Brule, and K. Hadded, "Chronic Vegetative State After Severed Head Injury: Clinical Study; Electrophysiological Investigations and CT Scan in 15 Cases," *Neurosurgical Review* 12, suppl 1 (1989): 477-99.
22. Jennett and Plum (1972), 737.
23. *Contra* Veatch the current literature distinguishes between PVS and PPVS in virtue of the widespread recognition that not all persistent vegetative states are in fact permanent. "Persistence" therefore is not thought to imply "permanence." For details concerning the etiology-relative likelihoods that those who are in persistent vegetative states will eventually recover consciousness, see The Multi-Society Task Force on PVS, "Medical Aspects of the Persistent Vegetative State (second of two parts)," *New England Journal of Medicine* 330, no. 22 (June 2, 1994): 1572-9. For a critical evaluation of the Multi-Society's Task Force position on PVS, see my "The 1994 Multi-Society Task Force Consensus Statement on the Persistent Vegetative State: A Critical Analysis," *Issues in Law and Medicine* 12, no. 1 (Summer 1996): 3-29.
24. One possible option is to follow the lead of Francis Crick and Christof Koch ("Towards a Neurobiological Theory of Consciousness," *Seminars in the Neurosciences* 2 [1990]: 263-75) who suggest that short-term oscillation patterns in the approximately 40 Hertz (Hz) range involving relevant neuronal groups is a necessary condition for the presence of phenomenal consciousness in human beings: No approximately 40 Hz oscillations, no subjective awareness. But this will not do. All Crick and Koch could possibly have shown is that such oscillations occur *when phenomenal consciousness is reported*. We could accurately predict, of course, that sometimes this neuroelectrical phenomenon will be present when it is not reported (in, for example, certain locked-in states) and sometimes conscious awareness will be reported to be present when it is not (as occurs in Anton's syndrome).
25. See Howsepian (1994) for a dissenting view.
26. Jennett and Plum (1972), 737.
27. Veatch (1993), 21.
28. See Aristotle's *De Animus*. A modified version of this conception of the soul-body relation has been appropriated into Roman Catholic anthropological thought

primarily by St. Thomas Aquinas.

29. According to the President's Commission (1981), "An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions or (2) irreversible cessations of all functions of the entire brain, including the brain stem, is dead. A determination of death must be made in accordance with accepted medical standards." (p. 2)

30. David J. Cole, "The Reversibility of Death," *Journal of Medical Ethics* 18 (1992): 26-30.

31. Cole (1992), 29.

32. See, for example, Paul A. Byrne, Sean O'Reilly, and Paul Quay, "Brain Death - An Opposing Viewpoint," *Journal of the American Medical Association* 242, no. 18 (1979): 1985-90.

33. D. Alan Shewmon, "The Metaphysics of Brain Death, Persistent Vegetative State, and Dementia," *The Thomist* 49:1 (1985) 24-80. A position that is relevantly similar to Shewmon's is echoed by John P. Lizza, "Persons and Death: What's Metaphysically Wrong with Our Current Statutory Definition of Death?" *The Journal of Medicine and Philosophy* 18 (1993): 351-74. It is significant to point out that Dr. Shewmon has come to repudiate the views espoused in his *Thomist* article and is about to publish a series of essays delineating his reasons for the repudiation.

34. Shewmon (1985), 46-7.

35. Shewmon (1985), 61.

36. See, for example, Thomas V. Morris, "The Necessity of God's Goodness," in *Anselmian Explorations* (Notre Dame: Notre Dame Press, 1987), 42-75; and Katherin A. Rogers, "Anselm on Praising a Necessarily Good Being," *International Journal for Philosophy of Religion* 34, no. 1 (1993): 41-52.

37. Shewmon (1985), 46.

38. Shewmon (1985), 46.

39. One could reject the claim that an ASLB, considered as a whole, exemplifies any functional unity at all, by arguing that it possesses only an *appearance* of unity which is itself mediated solely by an *extrinsic* principle (perhaps understood to be a series of efficient causes). On this view, the ASLB would not be a single living organism - except in name - but merely a heap, a disintegrated aggregate composed mostly of living cells.

40. This is of course, controversial. One might argue (as has Steven Jensen in conversation) that all artificial hearts and limbs are hearts and limbs only analogically because these parts are not informed by the substantial form of the organism. To this I respond that not all genuine *parts* of a living organism need *themselves* be living. It seems to me, in fact, that something can be a part of an informed whole but not itself be an *informed* part of that whole.

41. Shewmon (1985), 47.

42. Van Inwagen (1990).

43. Regarding the genuine possibility that being in a PVS is compatible with possessing a conscious mental life, see Howsepian (1994).

44. Shewmon (1985), 66-7.

45. It would be surprising if Shewmon were to deny the truth of this conditional. What he does deny is the consequent of the conditional, while I accept the consequent in virtue of accepting the antecedent.

46. Shewmon (1985), 60.

47. Shewmon (1985), 73.

48. See van Inwagen (1990).

49. I am grateful to Steven Jensen, Trenton Merricks, Mark Murphy, Michael Rae, and Robert M. Veatch for helpful critical comments on earlier versions of this essay. Versions of this paper have been presented at Trinity Evangelical Divinity School in Deerfield, IL and California State University, Fresno.

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