BRAIN DEATH--THE PATIENT, THE PHYSICIAN, AND SOCIETY

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In recent years a radical change has taken place in the practice of medicine, a change still developing yet already grave with consequences both for the interests of each individual and for those of civil society as a whole. The clearest manifestations of this change have clustered around the manner in which it is to be determined that a person has died. From this perspective, the recent and proposed changes in law that have imposed "definitions of death", appear as attempts to have society accept and approve this reorientation of medical practice. What is not so clear is that society has understood the issue sufficiently to have given informed consent.[1] Though this change in medical practice is more extensive than the particular aspects connected with the determination of death, we must here limit ourselves to this narrower range of problems, which are already sufficiently complex and wide-ranging.

We have thought it important to write an article that would present with some fullness the issues which are involved in the new modes of declaring a person dead. All concede the complexity of these issues. Therefore, it is desirable to lay out coherently their intrinsic structure and to state clearly the nodes of interaction between the different disciplines that bear upon them.[2]

Without a comprehensive and carefully structured overview, the different groups with interests in this discussion may continue merely to ignore or rail at one another and to speak rationally only within the limitations of their own group.

Part I sets forth the nature and structure of the recent change in medical practice and shows something of its social import. Quite apart from questions of practice, there is a serious theoretical question addressed in Part II: whether the criteria approved by the new statutes are medically correct and properly expressed, and also whether they truly correspond to a person's death. Since one of the major social determinants of law and of its suitability for a given people is their religious and moral convictions, in Part III we seek to find to what extent the new mode of medical practice and the legislation which embodies it are compatible with the major religious traditions of this country. Part IV considers various legal questions not dealt with elsewhere and presents what we regard as the minimum requirements for proper legislation in this domain.

I.

The law can be interested in a person's death for two very different kinds of reasons.

(i) A person's death represents a tearing of a large web of social relationships. Civil society has an interest in preventing this tear from causing a large-scale unravelling of further relationships and in promoting the process of healthy growth of new relationships. For this sort of situation, the fact that the web has been torn is of basic importance; but, ordinarily, the time of death can admit of some arbitrariness in its determination. No social harm is done if one criterion of death rather than another is used, e.g., for inheritance law, so long as some sound and

definite criterion is established. Legal presumption concerning the moment of death is allowable in this context since no one's natural rights are put in jeopardy, except by accident, by any of the reasonable presumptions which could be made.

(ii) A person's death is the cessation of his own life among men and of his temporal existence in human society. The precise moment when his life actually ends is of paramount importance to this individual. From this point of view, there is no ground for legal presumption or for less secure criteria. His right to live as long as he can is his most basic right, grounding the possibility of all other rights.

The state also has a paramount interest in this matter. It is gravely obligated to protect the individual's right to live as long as he is able. This obligation is independent of any other interests, assuming that the person is innocent of capital crime. Further, the state is also obligated to protect all its citizens from those modes of dehumanization which arise from the holding of any innocent human life in contempt or as unworthy of reverence.

Any withdrawal by the state from the former obligation jeopardizes the lives of all members of society and breaks down the entire system of trust, assistance, and mutual support which enables the state to function. Any withdrawal from the latter obligation opens the door to a dehumanization which, if it happens in medicine, leads to the destruction of people's confidence in a profession without which society cannot well function.

If we choose to have at law but one basic understanding and meaning of the word 'death,'[3] then it is the class of state interests indicated in (ii) above that must remove the degree of

arbitrariness permitted by the class mentioned in (i).[4] As a result, the present discussion is confined to the relationship between "brain-death" legislation and the second class of interests.

Our argument in the rest of Part I is that in view of a basic shift in the practice of medicine, manifested most clearly by a change in the way death is determined, any legislation which furthers, aids, or gives color of legitimacy to this change opens the door to dehumanization, in and through medicine, by allowing the lives of the innocent to be hazarded without necessity.

In Section 1, we briefly glance at the current legal situation concerning brain-related criteria of death. Section 2 then considers the change of medical practice alluded to above. Finally, in Section 3 we indicate some of the ways in which dehumanization is already occurring among physicians, lawmakers, and the rest of society as a direct result of this change.

1. Legislative and judicial action concerning the "definition of death" has increased substantially in the past few years. Approximately thirty states have adopted some type of statute recognizing "brain-death;" similar bills have been proposed in most other states. In the absence of such laws, the courts have uniformly shown themselves to be open to current medical opinion on the matter.[5] Recently, some state supreme courts have adopted as law for their respective states one or other formula drawn from the statutes of other states, or from one of the model statutes that have been proposed, e.g., by Capron and Kass,[6] the American Bar Association,[7] the American Medical Association,[8] or the National Conference of Commissioners on Uniform State Laws.[9] A sizeable body of literature on the subject, mostly favorable to

defining death by statute, can be found in medical journals and those devoted to medical ethics and law.

Most recently, the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, having "worked with the three organizations which had proposed model legislation" and with their endorsement, recommended the adoption of the following statute in all jurisdictions of the United States:[10]

> Section 1. An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation 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.
>
> Section 2. This Act shall be applied and construed to effectuate its general purpose to make uniform the law with respect to the subject of this Act among states enacting it.
>
> Section 3. This Act may be cited as the Uniform Determination of Death Act.

The text of the thirty statutes mentioned above, along with a comparative analysis of their wordings, is contained in the Report of the President's Commission.[11] There seems little need simply to transcribe that material here.

2. The first "brain-death" statute was adopted in 197O.[12] How is it that only recently we have come to need such statutory "definitions" of death?[13] The common response seems to be: (i) Medical advances have rendered our earlier notions (or criteria or tests or definitions) of death

obsolete. (ii) The courts, with far less competence than legislatures to decide the underlying social, philosophical, and religious issues, are an inadequate mechanism for bringing about updated notions, criteria, tests, or definitions.[14]

The second, and essentially independent, part of this response is basically sound and does not need to be discussed here.[15] The first proposition, however, though seemingly the more obvious, is incorrect.

During the past decade and a half, most articles on dying and death have pointed to major improvements in medical technology, especially those integrated into life-support systems, as the source of the problems which make a new "definition" of death necesary.[16] It is repeatedly stated that the old methods for the determination of death have been rendered obsolete:[17] what those methods implied was failure of the brain's functioning; hence, a "redefining" of death in terms of irreversible cessation of brain function would coincide with the older criteria wherever they were valid and would solve our technologically created problems in those cases where both science and common sense show the older criteria to be inadequate.[18]

We have been told that it is now possible to sustain, for months or years, a "mechanically perfused cadaver"[19] that we are only pumping blood through a mechanically ventilated corpse.[20] Through the power of our technological means, the dead may now appear as if alive. It is contended that this body with its regular pulse, its near-normal warmth and coloration, its continuous output of sweat and urine, is not a body at all but a carefully and expensively maintained corpse.[21]

Those with an eye for literary structure may wonder about these assertions. Stylized and highly repetitive, they rarely show freshness of expression or other evidence of personal rethinking or assimilation. The mere multiplication of such assertions does nothing to strengthen the position they indicate.

Further discomfort with these statements arises when one reflects that technology no matter how complex, of itself cannot pose moral problems. The problems come from ourselves as we ponder the uses we might make of our technological skills. Current problems concerning the time of death come not from new knowledge, skills, and inventions but from our new "needs", i.e., the new powers have roused in us. It is we who, for motives of every sort, wish to declare these bodies dead so as, e.g., to render automatic the painful decision to cease treatment or to utilize parts of "dead" bodies in ways now possible for the first time.

It is generally acknowledged that the call for new "definitions of death" has arisen in order to clear away the legal obstacles to transplanting vital organs or to excising them for purposes of research immediately upon the occurrence of death.[22] Few writers advert, however, to the fact that these transplant and research activities bring with them a major change in the very concept of medicine; still fewer notice that it is this change which induces most of the problems of which we have spoken.

A first indication of this profound change can be obtained from a careful reading of the full text of the Uniform Anatomical Gift Act and of a number of related statutes passed or proposed since.[23] The trend is clear: a person's permission to make use of his body after his

death is becoming, at best, an obstructive formality. His next of kin, or even the municipality, may proffer permission in his stead; all that is required in order to use the body is lack of clear evidence of refusal. Little provision is made for discovering whether such evidence exists.[24]

Quite apart from the possibility of abuse, such practice shows two things: a) it is increasingly taken for granted that, once a person is truly dead, it does not matter *to him* what is done with his corpse; and b) as far as society is concerned, it is being accepted that the living are free to utilize each human corpse for their own purposes and convenience; indeed, that they *ought* to do so provided that they give no needless offense to other people. The former assertion is repugnant to many on religious grounds, while the latter assertion is a moral principle that, to our knowledge, is wholly new to the world save among some few cannibals of the Southwestern Pacific.[25] The authors hope to discuss this matter in detail elsewhere; here, it is sufficient to note the fact, for it is clear evidence that, consciously or not, medical practice has changed in its most basic relationship with society.

Another indication of a change in medical practice is the tendency to consider determination of death as the automatic result of the verification of one or more criteria of death.[26] Yet, there must always be an experiential context within which the various criteria obtain their significance and without which one can always construct exceptions to the formally specified criteria.[27] For example, despite frequent assertions to the contrary, there was probably never a time when irreversible cessation of breathing was taken by itself as an indication of death. Even primitive man must have known that a sharp enough blow to the solar plexus could

produce a lethal cessation of breath. Yet, if the person so struck had a sword in hand, he would not have been considered safely dead till he had lost consciousness and fallen immobile.

Recent studies confirm that never heretofore have physicians as a group felt they had a context-free general criterion, sets of specific criteria, or tests for death.[28] The establishment at law of a general criterion, though permitting contextual treatment of specific criteria and tests in accord with currently acceptable medical practice, supposes that the general criterion itself is wholly adequate and context-free. Yet, the mere fact that the putative, earlier and accepted general criterion,[29] is itself being challenged by those favoring brain-related criteria, surely suggests that to legislate or adjudicate such a criterion, especially when medical opinion is far from unanimous on the matter, is at the least premature.

One might reply that no physician would apply brain-related criteria in the manner of a checklist, without regard to medical context. We grant that these criteria are rarely applied without any regard for context. Yet the Minnesota and the British criteria, to give the most striking examples, are sufficiently separated from context to allow about one of every twelve people to whom they are applied to have vital organs removed when their cerebral cortex (the part of the brain associated with sensation, feeling, thought, and other conscious activity) is alive and active.[30]

A third indication of radical change can be found in the way in which methods for deciding a person's death have altered in direction. Until recently, the only medical reason for changing the criteria and tests used in the determination of death was the desire to save lives that

would have been declared extinct by older norms but which more recent experience suggested might still be present. Admittedly, convenience for the living was also a motive in some of these changes; but such convenience was easily overridden whenever there was thought to be reason to fear that one might bury someone alive, as the institution of "waiting mortuaries" in the 18th and 19th centuries shows.[31]

But, the new, brain-related criteria were *not* introduced as more stringent indicators to physicians that, even though all hitherto useful early signs of death are present, the patient might not be dead at all and that the physician should work on him longer or at least wait a while longer before burial. Rather, they are presented as ways of determining that someone has died *even though* the older general criteria have not been met. One can be adjudged dead by the new general criteria when use of the older ones would indicate that he is still alive.

It is not hard to discern the over-all pattern these changes form. There was a time when a determination of death, however arrived at, was concerned with only one problem: how to be sure that a person would not be buried or cremated alive, or, more generally, that a still living person not be treated as a corpse.[32] At the conscious level, at least, the whole thrust of the older ways of determining death was to protect the dying person from being killed unwittingly by the living.

Premature declarations of death have always been possible. Yet the goal of medical practice in establishing ever more accurate ways to determine death has been to make sure that a person who was still alive would not be treated as if dead. Mistakes could still be made in either

sense. Despite one's best efforts, not only could one judge someone who is still alive to be dead but, at least in principle, one could judge a person to be alive who had already died. The latter mistake, at least theoretically, was not only so rare as to seem impossible but of no importance if it did occur. Hence, all earlier effort to determine accurately the moment of death was consistently oriented in the single direction: to preserve human life against a death-dealing mistake.

The proposed brain-related criteria are not merely new criteria but are intended to be used to prevent anyone from being treated as alive when he is already dead. Physicians are now concerned with preventing the possibility that present-day life-support systems might mask death and cause a corpse to mimic life at the expense of the living, in suffering and in money. A determination of death is sought which will enable a physician to treat a body as a corpse at the earliest moment possible. Not only the desire for transplantation of vital organs but the usefulness of research in such rapidly disintegrating parts of the body as the lungs and the liver urge him to make full use of the still living parts of the body which has just been declared dead.

In this situation, also, mistakes can be made in both senses. Here, however, a mistake made in the sense opposite to the intention of the criterion--by judging a person to be dead when he is still alive--is not, as yet unthinkable. Nor is such a mistake unimportant should it happen. Further, the effort here to determine accurately the moment of death is ambivalent, intended indeed to avoid treating the living as if dead but designed primarily to avoid treating the dead as

if alive and--more important ambiguity still--consciously directed to making certain that the desired organs *are* alive.

The older methods for determining death (and possibly some newer ones) serve well enough if a mistaken determination of death has no other result for a dying patient than his being allowed to die without further treatment. Thus, in the past, there has been no outcry at the fact that it is non-physicians who determine the occurrence of death in the great majority of situations, even though the doctor must confirm the fact of death and sign the death certificate. Nor has the wide variation in instrumentation and in the concrete ways of declaring death in various parts of even a single hospital been seen as hurtful or unjust since there seemed to be no likelihood of harm to the patient from his being declared dead.

But the new criteria (and even the older ones, as will be seen in Part II) are seriously inadequate if a determination of death is to be the signal for excision of a person's vital organs, for immediate autopsy, or for early embalming or cremation-actions which are certain, if a mistake has been made, to kill the still living patient.

If one is about to do something that will kill a person, should he not be dead, or that will cause him acute pain or anguish, should he be utterly unresponsive but not utterly unconscious, then ascertaining his death requires a stronger and more deeply humane concern for his welfare than if the only consequences of an error will be cessation of treatment and eventual, unobserved expiration.[33] Yet, just where a greater humanity is called for, less is offered.

a) In the medical literature, there is abundant evidence of unseemly haste to declare someone dead. For example, articles on the development of clinical tests and specific criteria for "brain death" have tended to confuse evidence that someone is about to die with evidence that he is already dead.[34] As Molinari appositely remarks of this tendency, "*prediction* of a fatal outcome is not a valid criterion for accuracy of standards designed to determine that death has *already* occurred."[35] Moreover, when the question is whether someone may now be *diagnosed* as dead as a prelude to potentially lethal action upon him, it is less than useless to be offered a *prognosis*, even an infallible one, of an eventually fatal outcome; no one with useful organs will be allowed to live that long. Absence of any possibility for recovery is not the same thing as death, though death assuredly implies such absence. Certain knowledge that complete collapse of the organism will occur in a few hours or days is not equivalent to knowledge that the patient is already dead.

In an earlier article,[36] the authors pointed to the diagnostic use of the EEG as but one of many areas where haste might prove hurtful. It has been reported[37] that transplant teams often entreat encephalographers to certify electrocerebral silence on the basis of a single recording, despite the likely breach of the latter's code of professional conduct, just as predicted some years ago by Toole.[38] Black's excellent study of these issues,[39] however, suffices for this area.

b) There is the growing tendency to "be practical", *i.e.*, to use simpler or easier sets of specific criteria, even when these are known to be less reliable, or to use more accurate ones, even where the tests employed can jeopardize the life of the patient. Thus, the invasive nature of

angiography[40] and the risks involved in its use on a patient near death seem to be generally acknowledged.[41] One risks inducing, e.g., by arterial spasm, the fatal condition one was seeking merely to demonstrate if present. Yet, "in many clinics, especially in Europe, cerebral angiography...is routinely used."[42] May one rightly seek to discover whether a patient has already died, using techniques which have a non-negligible likelihood of killing him if he is not already dead? Yet, techniques for ascertaining cerebral blood-flow that are of negligible risk seem to be less than conclusive if one is concerned to establish destruction of the entire brain.[43] If inconclusive, vital organs may not be taken on this uncertain basis. But, in fact, it has yet to be established under what conditions the complete absence of cerebral blood-flow will be fatal.[44]

"An Appraisal of the Criteria of Cerebral Death",[45] speaks of prerequisites to be met if use of the criteria is not to lead to an erroneous diagnosis of a dead brain. Having mentioned the factors which could lead to such errors, the "Appraisal" remarks: "However, the practicality of eliminating the presence of these factors may be questioned on the basis of the findings of this study."[46] Then, to avoid incorrect diagnosis due to these and other uncertainties the "Appraisal" proposes "as a safeguard" that a test of cerebral blood-flow be performed--a test either hazardous to the patient or less than certain--"in all cases in which an early decision of cerebral death is desired;"[47] words that seem to apply primarily in cases of organ transplants or immediate autopsy. Yet, even those as sympathetic with the move toward "brain-death" as those at the Hastings Institute were concerned that *no* considerations of any good other than the patient's ever be allowed to affect the choice of one's criteria of death.[48]

Again, there has been a movement from the more exacting[49] to the less demanding.[50] More serious has been the continual spreading and ramifying of the original Minnesota criteria,[51] despite abundant evidence that they are patently unreliable for diagnosis, as distinguished from prognosis, of death.

Thus, when the Harvard or the Japanese[52] criteria are used, the number of patients who meet the criteria (and so are to be declared dead) is small compared with the number showing unresponsivity and apnea,[53] which are the prerequisites for use of the criteria. A.E. Walker remarks: "[These two sets of criteria] are so constrictive [*sic*] that only a very small percentage of cases can meet them and qualify as cerebral death. Obviously, such criteria have little value in routine practice." However, Walker goes on to say of the Minnesota criteria: "8% of the patients would be classified [by these criteria] as cerebrally dead in the presence of biological activity in the EEG, certainly an anomalous and undesirable situation."[54] The general public, duly informed of this situation, might well use stronger language.

To consider the matter more closely, take as an example a case in which the brain stem is destroyed without direct damage to the cerebral cortex. The patient, though probably capable of emotion may be unable to manifest any clinically observable signs of such brain functions. An EEG, however, can make clear what the situation is.[55] Yet, the Minnesota criteria for "brain-death" and the many sets of criteria derived from them[56] refuse to require the use of the EEG.[57] If, then our society is willing to allow the EEG to be optional when vital organs are to be excised from patients declared dead on neurological bases only, we are consenting to the killing of

patients for their organs--though the physician would never know which one of each twelve patients he had killed. Can the proposed or current legislation on "brain-death", couched in terms of "accepted", "ordinary" or "usual and customary" standards of medical practice, offer safeguards against this already common practice?

Loss of apparent consciousness[58] for a few hours due to demonstrable destruction of the brain stem is widely considered, then as a license to declare a patient dead and to treat him as a corpse. He may then be buried, although burial need not be immediately envisaged. There are too many profitable things to do with the still functioning bodies of "dead" persons, things that could eventually make extraction of their vital organs an act of mercy.[59]

Doubtless, the motivation behind the UDDA and other "definition-of-death" statutes is precisely to prevent such abuses. But, as will be shown in the remaining parts of this paper, the statutory results do not measure up to the high quality of the motivation. And-our present point--*legal validation of less reliable criteria in just those cases where greater reliability is essential* gives up in principle the entire battle. For in a potentially lethal context, to accept less certain criteria when better ones are at hand is to shift from a primary interest in and obligation toward one's patient with respect to his most basic right, that of life itself (without neglecting his social context and relationships), to a primary interest in and obligation towards the supposed good of society,[60] even at the risk of the patient's life.

'Risk' is used advisedly, since if one is concerned only with avoiding premature determination of death, there already exist totally acceptable and non-controversial ways of

making that diagnosis (though there are no infallible, context-free criteria). Only if one is interested in something other than certitude about the patient's having died is there any need for a new criterion of death or any reason to use one. Given the universally admitted difficulties in applying the new criteria, this "something other" is neither a greater ease in use nor a greater security in application to individual cases nor anything else destined directly to the good of the patient.

Hitherto, when hazardous treatment was contemplated, the risks and advantages of treatment and of the *status quo* were both assessed with respect to the same person, who then chose one or other for himself or had a fair choice made on his behalf by those closest to him. But those who desire a statutory protection for the use of brain-related criteria of death are urging that it be made legitimate for the physician to take needless risks with one patient's life for the sole reason of some possible good for the patient's family (as, for example, decreased suffering or expense) or for another patient (as with organ transplants).[61] If one may risk one's patient for the possible good of another, why not, even more commendably, for the good of all mankind? Indeed, it is to this end that immediate excision of vital organs for research is usually directed. What obstacle in principle remains to undertaking medical research on a patient, not for his good but for Humanity, a faceless and featureless abstraction no better than the Race or State in whose name such research was carried on by those condemned at Nuremberg?[62]

If this seems excessive, recall that many lawyers and physicians are already arguing in favor of far worse things than the current statutory definitions of death. They wish to speak of

one's patient as "humanly dead" when he has ceased to be capable of "human activity" or when no signs of capacity *for* social interaction with his environment can be found.[63] What these writers mean by "human activity" is, exclusively, some manifestation of thought or feeling[64]--as if our entire brain were not human, as if any of our activity, even the growth of our toenails or the movements of our bowels, were not human, albeit analogous to what takes place in animals or even plants. These authors seem convinced that empirical death is, as such, religiously, morally, legally, and medically unimportant in comparison with the significant fact of the irretrievable loss of one's most characteristically human functions of thought and feeling.[65] It is contended that those who are yet alive (in the ordinary sense) but who are no longer capable of the higher human functions should be treated by society and the law as if they were dead. In addition to those empirically dead *(e.g.,* with *rigor mortis),* they desire that one or more categories of those still living but "as good as dead" be converted by philosophical arguments into categories of "those already dead." Indeed, some argue that death would be better for the patient than a comatose state."[66]

The religious and moral hearing of such arguments will be touched on in Part III. Here the matter is addressed only to show that there is no natural stopping point once one has accepted a definition or general criterion of death based on the irreversible nonfunction of the brain. Already, so soon after the near universal acceptance of such a definition or criterion, the drive for "cortical death" is fully underway, and plausibly enough, once man has been reduced to his functions.[67]

II.

The scientific weakness of the new "brain-death" criteria can best be seen in their persistent but false assumption that there is no practical difference between total destruction of the entire brain and irreversible cessation of total brain function.[68] Yet, both the religious and legal arguments favoring such statutes require for their legitimacy that total destruction and irreversible nonfunction be the same thing, and that each be equivalent to the death of the human person. We look first at the supposed equivalence between total destruction and irreversible loss of function and then consider whether either can rightly be considered equivalent to the death of the human person.

1. Having dealt with the relationship between destruction and cessation of function in some detail elsewhere,[69] here we may be brief. The central difficulty with an identification of cessation of function and destruction is that any brain which has been wholly destroyed[70] has irreversibly ceased to function, but irreversible cessation of function need not imply destruction.[71] For example, a number of substances are known, e.g. barbiturates, which can completely suspend the functioning of the brain yet need do it no harm at all. Not many years ago most drug-induced suspensions of function were medically irreversible.[72] Today, however, if proper life-support measures are taken, a person can be brought back to health--without any brain damage whatever--after many hours and even days with what is clinically a totally non-functioning brain.

Note that, when barbiturate poisoning was strictly irreversible, the cessation of function was, it is now known, separated in time from the resulting destruction of the brain. The brain ceased to function, the person stopped breathing, and cardiac arrest soon followed. Even then, however, the brain was slow to suffer damage for, ironically, we now know, barbiturates protect the brain from the effects of anoxia. Today, it is evident that people declared dead because of barbiturate poisoning had, in fact, living and potentially resuscitatable brains for perhaps an hour after their hearts had stopped. Yet, had our present statutes then been in effect, since this cessation of function was at that time total and irreversible, such a person could, while still alive and capable of recovery, have had all his vital organs removed.

Many other types of previously irreversible cessation of brain function have eventually yielded to medical progress and been released in certain situations. In each of these cases the statutes under discussion would have allowed the killing of those still alive.[73] There remain further types of irreversible cessation of all brain functioning. But by what right do we conclude that medicine will never progress to the point of reversing any of these? Any time such a reversal takes place, at least one person's life is saved which would have been destroyed had a physician taken his vital organs after a declaration of death in full accord with the law.

We agree, of course, that if someone's brain stops functioning, something is manifestly wrong; and the details of the cessation of function can be of considerable diagnostic value. Complete cessation of function, especially when it seems irreversible, is an extraordinarily important element among all those other elements that are needed in a given context to

demonstrate the destruction of the brain. Also, some of the better sets of criteria for "brain-death", *e.g.*, the Harvard criteria, are among the better indicators of destruction of the brain and not of mere cessation of function. On the other hand, much work remains to be done medically before total destruction can be shown by thoroughly reliable tests that offer no risk for the patient.

Another difficulty in the use of irreversible cessation of all functioning of the brain as a general criterion is that such a criterion is not yet universal in its range of application. Current criteria are so manifestly unreliable for babies, children, or even younger adolescents,[74] that explicit exceptions are generally made to their application to this age group. On the other hand, complete destruction of the entire brain would apply as rigorously in these cases as with older people.

2. Even if all "brain-death" statutes were amended so as to refer no longer to irreversible cessation of all functioning of the brain, but only to its total destruction, a further question needs to be answered: is the total destruction of the entire brain an adequate criterion of personal death; *i.e.*, is it true that whenever the brain is known to have been wholly destroyed, the person is, by that fact, known to be already dead? Or we may go further and ask: Is destruction of the entire brain the same thing as the death of the person.

There is little doubt at present that complete destruction of the entire brain at the least, accurately predictive of death. But whether such destruction can be found only in those who have died or even whether it *is* death depends on whether the physiological unity of the body

necessarily ceases with brain destruction or whether that unity is thereby merely gravely undermined and weakened until, following cardiovascular collapse, it disappears.[75]

To get an answer to our question, let us consider the relatively uncomplicated case of an individual whose brain has been badly damaged, but the rest of whose body has not been otherwise impaired. He is in deep coma and has been placed on life-support systems. Several neurologists, each using his own preferred set of criteria, have declared that this individual's brain has "irreversibly ceased to function." Before attempting to discuss life and death, let us examine this case in two different situations:

a) If nothing is done to ventilate[76] this "patient",[77] then, since no one with a destroyed brain can in any degree ventilate himself, the respiratory processes in the lungs will quickly cease. In a matter of a few minutes, the heart will cease to beat and the usual signs of death will appear in due order.

b) If, on the other hand, suitable ventilatory support is provided and the usual methods of maintenance for one in a deep coma are provided (such as intravenous fluids and nourishment, drainage of the bladder, prevention of bed sores, etc.), then this "patient's" body will maintain itself in a state in which the heart beats, the lungs exchange carbon dioxide and oxygen, the kidneys put out urine, the body temperature remains well above ordinary room temperature, sweat is secreted, liver metabolism continues, and movements of the limbs, due to spinal reflexes, persist. Nevertheless, there is much evidence to support the position that some destructive process is at work in such a body, although recent studies have shown the need for

care in drawing this conclusion. Early studies on brain dead patients showed that within a week,[78] usually in less than 72 hours, regardless of all efforts to prevent it, cardiovascular collapse would take place, all respiratory processes would cease, and all the usual signs of death would appear.[79]

However, more recent studies have noted a number of cases of long term survival of brain dead patients. Rapid asystole is no longer an inevitable result of whole brain death. A Japanese study showed that brain dead patients maintained with vasopressin and epinephrine lived for an average of 24.1 days; the longest survivor lived 54 days.[80] Brain dead pregnant women have been kept alive for up to 107 days and have delivered near full term infants.[81] The most remarkable cases of long term survival of brain dead patients has been presented by Alan Shewmon. In a recent article in *Neurology*, Shewmon studies 56 cases of long term survival in brain dead patients; the longest surviving patients, all children, survived 2.7, 5.1, and 14.5 years. He argues that after an initial period of hemodynamic instability, many brain dead patients, especially children, can be maintained almost indefinitely with minimal nursing care (ventilator, feeding tube, etc.).[82] The implications for continued organic unity in the bodies of brain dead patients are obvious.

Though it requires great skill and experience in a highly competent physician to diagnose accurately full destruction of someone's brain,[83] it requires very little skill to perceive the change that takes place when the body with the destroyed brain suffers intractable cardiac arrest. Not only the nurses, but even a layman can tell whether the lungs of a "person" on ventilatory support

are still exchanging gases (though a layman would put it in terms of skin-color, *e.g.*, pink, bluish), whether his heart is still beating, whether urine is still collecting in the plastic bag at the bedside, whether the "patient" is still sweating a bit, etc. Thus, there exist two medically different, easily distinguishable, states: i) that of a person whose brain has been destroyed but the rest of whose body is still alive and functioning as a single organism;[84] and, ii) that of a person who has suffered, in addition to brain destruction, intractable cardiovascular collapse and whose other organs are rapidly deteriorating, without further interaction with one another.

On the basis of these facts, the question may now be addressed: is destruction of the brain identical with the death of the person? The state designated (ii) above, which occurs after a few minutes in situation a) or after a few hours or days in situation b) is identical in all respects with the state ordinarily called 'death'. But the original state (i) of the patient, in which only his brain was assumed destroyed, is physiologically a wholly different state from death unless one chooses to use 'death' equivocally.[85] It is hard, then, to see how the law could permit these two medically different states to be identified with one another. Since there is no *biological* basis whatsoever for identifying a "brain-dead" person with a cadaver, such identification can only be made on highly debatable philosophical grounds; these are hardly the proper basis for a fundamental change of law.

Ordinary language would designate state (i) as that of a dying person, still living but fatally injured, already at death's door. Biologically, the body with a dead brain is a single, unitary, still functioning, but mortally damaged organism. If, on the contrary, the simple fact

that a patient's brain has been destroyed proves that he has died, then what do we call the process which leads from "death" to death? Does he die twice?

Most of those who have considered the relation between state (i) and state (ii) fall into error at this point because of their underlying assumption that the artificial maintenance of vital signs provides only a simple mechanical substitute for the functions in question. In these cases, it is thought, there is no real respiration of a living organism or real organismic circulation. Because these functions are artificially stimulated or supported, it is assumed that no true, vital contribution is being made by the organism as a whole and that only the artificial support system (mechanical and chemical) is at work.[86]

The error in this assumption can be most easily perceived if one considers a "patient" in state (ii) who is still kept on the ventilator, whose pacemaker is still active and in place, who is still receiving vasopressor drugs, etc. Here, despite this artificial movement of the "body" and activity upon it, no organismic vital signs are present. Apart from isolated cells or tissues, there is nothing happening but progressive disintegration. On the other hand, patients in state (i) manifest the ordinary vegetative functioning of the organism as a whole until such time as the loss of brain regulation and the effects of brain disintegration (a chemical matter as well as neuronal) stop these functions through destruction of their underlying systems. Then, and only then, is the patient dead in the sense in which ordinary people and the law, until recently, have used the term.

What matters, evidently, is not the artificiality of the aids to vital functioning but whether the body is still a single organism whose vital parts, however supplemented from without, still act in basic union and intercommunication with one another. Thus, when seeking to define death, one should speak less of tissues or organs and more of systems. For, if the heart is destroyed but, by artificial means, circulation is for a time maintained, the patient can continue to live. But, if the circulatory system is destroyed, there will be no circulation and death will ensue. So, also, if the respiratory system is destroyed, no respiration can take place and the organism will disintegrate. If the central nervous system is destroyed, neurological control from the brain is irretrievably stopped.

Let us return to the question: Are there two kinds of personal death? If the answer to the latter question is affirmative, then, since the two "deaths" of a single individual may be separated by several days, would it not be better to recognize them both at law, speaking unequivocally of "those with destroyed brains" and "those who have died" and construct appropriate legislation for dealing with each?

This last suggestion is, unfortunately, not likely to be accepted. For, a major purpose of "brain-death" criteria is, very simply, to make available "corpses" that are alive, living bodies that may be dealt with as cadavers. Walker phrased the matter with chilling accuracy when he called for "a set of criteria that would identify a dead brain in an otherwise living body."[87] This is not shock-rhetoric but coldly practical. As but one example, in the George Washington University Hospital, the hitherto young and healthy who have been declared "brain-dead" are

placed, in order to preserve their organs till transplantation, on life-support systems which are refused, rightly enough so far as we know, to those dying of age or disease and in hopeless coma.[88] What will those lamenting the indignity done by "perfusion of mechanically sustained cadavers" say about these situations, made possible *only* by the "brain-death" criteria they advocate?

While the assumption that there might be such a thing as a live corpse *might* be valid, the burden of providing irrefutable and certain proof rests entirely on those advocating the new criteria. But is it not possible that, in their desire to alleviate human suffering, they have been forced to accept assumption rather than proof because what they seek does not in fact exist?

3. Nonetheless, some highly competent physicians assert that death of the brain *is* death of the person.[89] The only direct evidence that could support this assertion, however, unless they are speaking as linguists or philosophers, would be that which would show, physiologically, the destruction of the brain to be the dissolution, destruction, or disintegration of the basic functional unity of the body. Though as just shown in Section II 2, no such evidence is generally at hand, the *indirect* arguments that can be offered are formidable:

For millenia, beheading has been seen as the most direct method for "putting to death", indeed, to be simply equivalent thereto. If the head of someone guillotined has sometimes seemed to be alive, even conscious, for a brief moment, this is due simply to the fact that, under the circumstances, the brain does not disintegrate instantly. Further, today, when microsurgery has succeeded in reattaching to the body completely severed members, which then live and

function normally, there would seem to be no problem in principle with so reattaching a severed head to its body that the person would recover fully from his decapitation--provided only that the brain had not disintegrated or been too severely damaged in the process.[90] In ordinary life, if someone's head is completely smashed in an accident, there is little debate about his being dead; and all parties consider him to have "died instantaneously".

In response, however, it may be noted that decapitation is not the cutting off of a brain but of a head, with all its arteries and veins, bony and muscular structure, and upper spinal cord, so that neither literal beheading nor its equivalent through having one's head smashed in an accident is the same as "brain-death". In decapitation, the heart quickly stops and the rest of the body begins to disintegrate. By no means is the brain alone affected. Indeed, one could argue that death by decapitation comes primarily from cardio-respiratory failure.

b) Over long years, a great mass of data has been compiled concerning people otherwise sound of body, with localized brain lesions. It has been possible to show that destruction of a particular portion of the brain brings about one or more highly specific losses of function in unimpaired parts of the body, or if the brain is uninjured but one or more of the neural pathways connecting it to other parts of the body is severed, similar losses of function and/or sensation or awareness occur in those portions of the body. All this would seem to indicate that, if the whole brain is destroyed, all sensation and most bodily functions are destroyed with it.

The weakness of this argument lies in the fact that the brain does not directly control all bodily functions; still less does the brain make all these powers be. For example, the heart will,

if properly "nourished", continue to beat for several hours, whether or not it is connected physically with the brain. Heartbeat is modified by the brain's action, not caused by it. The lungs respire with or without the brain, although the brain makes the rib-cage rise and fall with suitable speed. If then, the brain does not make these activities take place, does not even control all of them, how can one assert with such assurance that the brain alone makes the whole body alive, that loss of the brain *is* the destruction of the entire organism?

Whether all sensation ceases is also not clear.

> [T]he higher level structures [of the brain] control the lower structures not by turning them on when needed, but by inhibiting their actions except as desired... [I]f a higher center is suddenly damaged, the older, more primitive units which it normally holds in inhibition are released to function on their own. Thus damage tends not to eliminate vital functions, but only to downgrade the complexity with which the job can be performed."[91]

But there seem to be fairly clear indications that sensation of some kind, including pain, is present even in those lower animals which have no "brain" of higher structural complexity than our spinal cord. Hence, in someone whose brain is wholly destroyed, the rest of his neural network, if undamaged, might be uninhibited to feel pain or other sensations, though he would have *no* means to manifest this fact. This would seem *a fortiori* to be the case if only the higher parts of the brain, *e.g.*, the cortex, are destroyed.

No firm counter argument can be drawn from the total lack of pain and other sensations felt by those whose spinal cord has been severed just below the brainstem. In these cases, the brain is still fully active, higher levels still inhibiting the lower. Admittedly, the spinal-cord system under these conditions must be neurologically uninhibited by anything taking place in the brain. The notoriously intractable problem remains, however, to know how sensation and consciousness are mediated by the brain and by the rest of neuronal network respectively.[92]

c) As mentioned, once total destruction of the entire brain has occurred, life-support systems cannot maintain in the body even the appearance of a single, organismic life for more than a few days to a week. Accordingly, it is very plausible to argue that from the time of the destruction of the brain, the "body" is in reality only a collection of parts, a set of remains, not a unitary being but an aggregate of diverse entities. As Korein remarks: "The premise underlying the concept of brain death is that there is a *single critical vital system*, the brain, whose irreversible destruction is both a necessary and sufficient condition in considering an individual as dead."[93]

In response, it is important to note that this argument is not a medically grounded assertion that, physiologically, the "body" of a "patient" whose brain is dead has no vital unity at all. Rather, it is an attempt to specify that the vital unity provided by the brain is of such importance conceptually that no other vital unity of the "body" is significant.[94] But, in fact, there is an overall structural unity given by skin, skeleton, ligaments, muscles, etc. (which also serve, in an indispensable way, physiological integration). An active "communication" between parts of

the body--and thus the unity that makes this a single organism--is carried on also, and substantially, by the circulation of blood with its chemical transport,[95] by "vital interchange" *(e.g.,* flow of lymph and other body-fluids, formation and circulation of corpuscles and platelets, reduplication of the individual's own biologically specific DNA in cell division, etc.), and by the neuronal activity of the peripheral nervous system and of spinal reflexes. To identify the person with his brain on this basis would be like identifying the zygote with its DNA. The "director" elements in either case are crucial for continued life of this individuated whole. Yet, in neither case, are they the sole source or means of interconnection or intercommunication among the remaining portions of the organism. The continuance in being of these "director" elements, therefore, no matter how necessary, cannot be simply identified with the life of the whole.

d) Finally, the human person is unique and irreplaceable. Whatever, therefore can be removed from a living person without destroying him, whatever may be replaced by machines, prostheses, biochemicals, or organs transplanted from other people must be either unnecessary to human existence or unessential to the life and being of the individual person. But, so the argument continues, any part of the body, apart from the brain, can in principle be simply excised or replaced without immediately causing death or other change of personal identity. Yet, no one seems willing to entertain seriously the idea that a patient with someone else's brain transplanted into his head would be similarly unchanged. Nor even in concept, can one think how to replace a person's brain with a machine, say a computer matched to all the cranial nerves, in such a way as to leave us with the original person. The living brain, then, must be the person--

or at least the locus of the person since it is the only portion of the body which is absolutely and totally irreplaceable.

This argument is strengthened by the fact that the Russians have severed a dog's head and maintained the head alive and functioning. In such a state, the head will still recognize with affection his master and show other signs of being the same dog he was before he lost his body. On the other hand, who would say that the decapitated body, if maintained through adequate perfusion and ventilation, is still that dog? If all but the brain can be removed without destroying the person and if that which is removed can be preserved without being the person any longer, what difficulty can there be with identifying the person, at least as a physical entity, with his brain? In other language, if the soul is always to be found in the portion of the body which includes the brain, even in the limiting case in which all but the brain is cut away, how can one say that the *same* soul (for if it is a different one, it is not that of this person) is simultaneously vivifying the disconnected remains of the rest of the body?

One may point out in reply that, one may, but need not, say that. Noting the successes of microsurgery that have reattached fingers, hands, or other members of a human body so that they once again live with the life of the whole and function as parts of the entire organism, one might say that, even if the human soul is to be found only in the severed head, the remainder, like the finger or hand, lives as an animal organism but is capable of revitalization by the human soul if rightly rejoined to the head. Alternatively, one might say that the human soul is immaterial in itself and, therefore, not intrinsically extended in space. Hence, though the imagination may

have problems with it, there seems to be no intellectual difficulty in conceiving the single soul as simultaneously animating the two disconnected portions of the human body.[96]

Further, the logical flaw in the argument can be easily seen. Robert's living and undamaged brain is, by supposition, a living though badly damaged Robert. But there is no way in logic to convert that proposition to one asserting that if Robert's brain is dead, Robert is dead. Even if one concedes that the human person is still present where nothing of his body remains save the living brain, one cannot make the living brain and the person identical. For, whatever parts of the body are still alive and properly conjoined with the brain are all parts of the human person. A hand is part of the person, even though the person will not be destroyed merely by the destruction of the hand.[97]

Moreover, impossible as it clearly is at present, there seems to be no medical proof of the impossibility *in principle* of total regeneration of a person's brain, since each cell of the person's body (germ-cells apart) contains all the genetic information that was needed to produce his brain in the first place. Much effort is being expended, with some success, in seeking to learn how to produce regeneration of axons. Regeneration of the cell bodies of neurons in the central nervous system is, at present, no more than a dream. Yet, the regeneration of the "brain" of planarians, of the spinal cord in salamanders, and the like, suggest at least that apodictic statements in this matter are not yet adequately grounded.

Finally, simpler animal forms with more primitive "brains" suffer relatively little loss of function when their "brains" are destroyed. In increasingly complex animals, however, the brain

becomes ever more important. But at what point does it become the whole animal--in the sense that its destruction *is* the death of the animal and not merely the cause of its dying?

In conclusion, the indirect arguments in favor of identifying total destruction of the entire brain with the death of the person are weighty. Yet none of them is able to make its point conclusively; not one is decisive. The issue is not settled and further work is needed before there is a basis for a secure consensus by the entire medical profession. Short of such a consensus, the establishing of such an identity at law is, scientifically speaking, premature. To force upon society a premature resolution of a situation of doubt when the lives of the innocent are the stakes is, at best, seriously irresponsible.

III

If we know that someone's brain has been destroyed, then we have a certitude as great as any in medicine that this individual will die shortly and is already incapable of any least, even momentary, improvement. If he has freely chosen to donate his cadaver or his vital organs for a legitimate medical purpose, then on what grounds can society be free to ignore his wishes and refuse to transplant his heart until it has definitively stopped beating--and is no longer useful for transplanting? Dead or alive, can it make any difference to a permanently unconscious patient that his vital organs are being excised? But if he has known in advance that his donation will be effective and that through his death some good can be done for others, then this is a practical good for the patient himself and eminently humane. If destruction of the entire brain is not demonstrably false as a criterion of personal death[98]--even if it is not demonstrably true--then is

not this whole matter simply a scruple, whose only practical importance is to block the great amount of good that might be done, solely for the sake of a *possibility* that a person with a destroyed brain might still be, in this most minimal of senses, alive?

All such arguments, however, are but variations on one theme, "If he's not dead, he's as good as dead. Treat him accordingly." The basic conflict over the issue of "brain death" occurs between those who espouse a purely pragmatic solution to what appears to them to be a relatively straightforward practical problem and those who argue that there are some things man cannot do and remain human, one of which is to risk needlessly the direct killing of the innocent. Though not the only people to argue in this latter sense, Jews, Christians, Moslems, and most other religious people, seem in sufficient agreement on this point that it is important, in considering "what practical difference it makes", to consider what they hold. Whatever else, to divide civil society needlessly on such a moral and religious issue would be a matter of practical consequence, especially at a time when governmental approval of abortion is deepening steadily a division and dissension more grave than any seen since the Civil War.

We turn, then, to some of the religious aspects of "brain death".

Arguments supposedly drawn from religious authorities for the notion of death as irreversible cessation of function (or functioning) of the brain have been commented on elsewhere.[99] Since, with one exception, none of these arguments has gained greater weight since then,[100] repetition of that material is unnecessary here. We consider three principal topics: in Section 1, we take up the basic moral argumentation concerning potentially lethal actions when

the fact of human life is in doubt, then look at the question of the various kinds of certitude one might, in principle, make use of, and finally discuss cessation of treatment as a practical solution to current problems. In Section 2, we consider the much neglected problem of dehumanization. In Section 3, we sketch some doctrinal issues at stake for Catholics and a good many others.

1. a) The following principles appear to be common to all the religious traditions in question,[101] though not always couched in this language or justified in the same way. Since they seem to be accepted, as well, by the majority of those with whom this article disagrees, discussion will be brief.

First, no individual or society has a right directly to kill an innocent human being.[102] Violation of a man's right to life is a grave crime against God as well as man. The crime is even worse if perpetrated by one to whom the victim had entrusted himself on the basis of natural ties or of professional standing. Hence, killing by a physician, whose professional commitment is to assist in the preservation and flourishing of the bodily life of his patient, is particularly heinous. Hence, to transplant a vital organ from a living person, even a person in perpetual coma, to someone else whose life might thereby be prolonged would be just such a heinous crime.

Second, one who is dying has not yet died but is still a living person. In fact, a dying person has a greater moral claim, all else being equal, on our love and on what service we can provide him than a person who is not dying, since the dying person is in greater need. Thus, to take a vital organ from a dying person is as morally reprehensible as taking one from a healthy person, perhaps more, because of the special bond set up by the former's dependency.

Third, as a direct consequence of these two principles, our religious traditions condemn any direct action to hasten the death of a dying person.[103] Though indirect "hastening" may be licit *(e.g.*, giving the only drug capable of relieving this patient's excessive pain, even though it will shorten his life), the shortening of an innocent person's life may never be intended nor be the primary immediate consequence of one's action.

But, fourth, one need not always initiate treatment nor indefinitely continue treatment already begun. In a wide range of circumstances, when a person is already dying, one may simply let him die.[104] Though God requires the avoidance of evil action, He does not obligate us to do or attempt every good one. Ceasing labors to defer the death of someone who is already dying would, ordinarily, be permissible provided that: i) either the means one must use to defer death themselves inflict grave hardship upon the patient or, at least, one's efforts offer no hope of amelioration of the dying patient's condition, physical or spiritual; ii) one does not seek or intend the person's death but still desires his recovery; iii) the patient (or those qualified to speak on his behalf if he is permanently incompetent) is willing to have such efforts cease; iv) one has no duty from some other source (*e.g.* parenthood) to keep working for the patient. These are not the only set of conditions which Christian moralists commonly see as sufficient to permit physicians to cease their labors, but are probably those most widely accepted.

Fifth, when there is an objectively grounded doubt as to whether a patient is dead or not, the great principle, both medical and moral, governs: *Primum, non nocere* (First, do no harm).

So long as the doubt remains, one may do nothing which will kill or needlessly injure the patient if he is, in fact, still alive.

For example, suppose that someone has donated certain of his vital organs for another's use as soon as he, the donor, is dead and also that it is not clear, medically speaking, whether he is as yet dead. Assume also that the recipient-to-be is sufficiently ill that, unless he receives these or similar organs in good condition and fairly soon, he will die. At stake on the one side is an innocent person's life, to which he has the strictest and most basic of rights. At stake on the other side is the right of one or more of his survivors to have the opportunity to benefit from the situation produced by his death. If the doubt cannot be settled within the time in which excision of the organs needs to be made, the choice is either to perform a positive action which *may*, in fact, be the killing of the donor or to omit that action, albeit in such circumstances that someone else *may* have to be allowed to die. The physician either settles the doubt once for all by taking the organs, thus making sure the donor is dead, or else he acknowledges his own inability to resolve the doubt and refrains from any positive action that could be injurious, thereby missing the chance to do something which might (or might not) prevent another person from dying as the natural outcome of his own diseased condition.

Hence, a possibly lethal action may not be taken unless and until the doubt can be removed, *i.e.*, unless and until certitude exists that the donor is already dead. Here, as in any case where the doubt is not about the moral principles involved but about the facts which must determine their applicability, the doubt must be removed *before* any action is taken which would

inflict grave harm upon a person if he is still alive, even if this should mean unwillingly permitting some other grave harm to take place. In brief, it is religiously unacceptable to remove someone's vital organs and then say, "Here...he's certainly dead *now*. You might as well use them; they can't help him any more."

On the other hand, the medical profession has a general, social obligation to search for better means to resolve such doubts, if not in the particular case, at least in others like it. Such doubt, as long as it exists, can work against the full exercise of some people's rights, not only in the case of organ transplants but also in situations where great psychological pain and distress, as well as expense, could be saved the patient's family, were he known to be dead, or where there is question of best serving the general good in the use of scarce facilities.

b) It is, then, in accord with such a framework of principle that the religious acceptability of the UDDA, the UBDA, the ABA's Definition of Death, or similar legislative efforts is to be judged. The statutes in question have generally been presented merely as efforts to recognize at law what physicians have already agreed upon, *i.e.* to accept at law modern means of resolving doubts in cases which, at least according to traditional law, must be adjudged doubtful. Though this ostensible goal is indeed desirable (we shall point out later how it might in fact be achieved), the proffered remedies are not satisfactory. As shown in Part II, 2, there is no doubt about the physiological and medical difference between a patient with a destroyed brain but no other injury (*a fortiori*, with a brain that has merely irreversibly ceased to function) and one who is dead.

What medical doubts there are concerning the "brain-dead" concern, rather, the lack of certitude possible in the diagnosis.

Certitude, generally speaking, is a clear perception, usually based on some prior knowledge, that one's judgment about some matter is necessarily true. There are many types of certitude, corresponding to the different types of knowledge which can ground the necessity of a judgment. Thus, one is mathematically certain if he sees that his judgment is necessarily true on the basis of the laws of mathematics. The medical certitude which a physician needs for a judgment of death is a variety of what may be called "scientific certitude." This is based on his assessment of certain facts, noted through the art of observation he has acquired, and understood in terms of the sciences which he possesses (physiology, biochemistry, etc.). It is these facts, so understood, which constitute the grounds for a determination of death. Note that, whereas logical, mathematical, and metaphysical certitudes are, in principle, exceptionless, scientific certitudes are not, being no more secure than the particular sciences which lie at their base.

The brain-related criteria do not measure up well to the older ones as to scientific certitude. Even the most basic relation, that between the destruction of the brain and the death of the person has not yet been established. But if we suppose for the sake of argument, that this question is resolved in favor of a relationship of identity, there still remain the uncertainties made manifest by the mere existence of some thirty disparate but medically accepted sets of "brain-death" criteria.[105] It is no help to appeal to the medical profession's consensus as to the best set of criteria; there is, as yet, no such consensus. These different sets of criteria are professionally

acceptable ones which competent physicians may use in a determination of "brain-death." One may also note that the recent set resulting from the Collaborative Study is "recommended for a larger clinical trial;"[106] that it has in no way been apodictically established appears from its rejection by British physicians, whose criteria, in turn, are refused by many Americans. These criterial uncertainties are made worse by being directly concerned with a presumptively irreversible cessation of the various sorts of brain function rather than with actual destruction of the entire brain.

It is not clear that there is yet a set of medically certain criteria for total destruction of the entire brain.[107] Related questions exist as to whether extant criteria show completed or only incipient destruction (if any at all),[108] whether they show destruction (or even loss of function) of the entire brain or of only a part of it.[109] When destruction of brain tissue is not brought about directly by an external agency, there remain sizable doubts about the precise causes and mechanisms of neuronal damage (simple anoxia? lack of necessary substances? presence of noxious ones? excessive intracranial pressure from glial swelling? etc.).[110] Nor is there certitude as to where the "point of no return" is in the process of neuron damage.[111]

Further, nothing stands out more clearly in the arguments for the various sets of "brain-death" criteria than their almost exclusively empirical character.[112] Usually, the various criteria being scrutinized are tested empirically against the older criteria of death (rarely with 100% success) or against post-mortem evidence of brain-destruction.[113] Understanding in terms of physiological principles is not neglected but is recognized to be as yet too incomplete to bear the

chief weight.[114] This is not a reproach; medicine remains an empirical art, however large its scientific components. Further, medicine labors under essential restrictions affecting the amount and quality of the data on human beings it may licitly gather, restrictions especially noticeable if it be compared to animal neurophysiology. And the most experienced physicians seem to be the most keenly aware of the endless bodily individuality of each of their patients.[115]

c) The inability of clinical criteria to give certitude as to destruction of the brain is often acknowledged indirectly by using the language of exceptions: such-and-such criteria give a valid indication of "brain death" *except* in cases of drug intoxication, hypothermia, etc.[116] That is, to avoid an abusive use of criteria, which would treat as dead those who suffer a cessation of brain-function that at present may be or might become reversible, the prior exclusion of all exceptions is made a prerequisite for their use. Merely clinical criteria are admitted to be uncertain unless the physician determines, before applying them, that the patient has not overdosed with drugs, is not hypothermic or hyperthermic, is not too young, and the like.

What seems little noticed is that this introduction of prerequisites means that directly observable facts and the perceivable state of the patient are admitted to be insufficient for certain judgment of "death" on the basis of total loss of function alone. But, in this case, any evaluation of scientific certitude must include not only the uncertainties inherent in the general *criteria* themselves but also those arising from the difficulty one will find in validating the absence of the exceptional situations.

Now, even the more reliable sets of non-invasive tests for brain destruction are notoriously difficult to apply. The difficulty in excluding a significant presence of drugs in the time usually available is often insurmountable in practice.[117] Neither the laboratory tests nor the interpretation of their data are acceptably free from error[118] at least in the context of a possible killing. For example, depressant drugs may often be found in the blood of those seemingly dead--but in small amounts, "within the therapeutic range".[119] Does such a finding show only an irrelevant complication to a situation of total destruction, or does it suggest that the cessation of brain function is in part due to that drug and may even be reversible?

Something similar is true for other common prerequisites: the presence of an irreparable cerebral lesion or the absence of cardiovascular shock.[120] Hypotension from cardiovascular shock can often be reversed, at least to some degree but not always.[121] 187 patients met the new criteria for cerebral death used in the Collaborative Study; 185 of these died *later*, as judged by the older criteria. And what of the other two?[122] To judge by the NYAS Conference, this situation is regarded as unsatisfactory by most physicians.[123] Hence, the thrust of medical research is to seek more clear-cut and definite tests or subordinate criteria which will allow a determination of brain destruction that is certain, regardless of a patient's history.

Therefore, even were the brain-related criteria perfectly secure in themselves and the tests in support of them equally so, the medical and laboratory complexities needed for application are such that one might well wonder if the older criteria are not significantly more certain in their application.[124] If so, they are obligatory whenever there is a question of possible lethal activity.

It may be objected that we are descending to details and particulars which are inevitably in flux, to the determination of death rather than to the criteria for it. But why not? Given that a major purpose of the push for new criteria is to be free legally and morally to excise people's vital organs, these criteria must remain religiously unacceptable until it is possible to show not only that they are certain in themselves, but that they can be applied without substantially greater risk of error than the older ones.

This is sometimes conceded but rejected as inconsequential: would not one expect, with the advances of medicine and the more complex situations which these advances have made possible, that more complex criteria would be needed? Could complexity alone be a valid ground for rejecting a criterion?

No one, however, has held that death itself has become more complex. Excising a person's heart today makes him as dead as ever it would have, though the procedures used in the excision are now vastly more complex than those used by the Aztecs. It is life that can be rendered more complex, not by the mere increase of external mechanical complexities, which do not alter the basic living processes, but through the initiation of genuinely new biochemical reactions in the body with correspondingly new types of homeostatic response. If complex technology enables us to maintain an organism alive in a state closer to death than has ever been possible before, this shows only that, in cases where potentially lethal action is envisaged, the risk of killing these people is also greater than ever before.

d) There is, of course, a kind of indirect certitude based on the existence of a universal agreement among those who are competent to judge with scientific certitude, especially where those competent people are not, on other grounds, disposed to agree. This kind of certitude is all that most non-physicians can have in these matters. But, in fact, there is no such universal acceptance of brain-related criteria by physicians and allied professionals necessary to ground even this sort of certitude concerning these criteria.[125]

There seems indeed to have been a strong movement among physicians and others during the last decade in favor of these criteria. Yet if we may judge by other issues in recent years, a surge of opinion can be generated and sustained merely by a strong, vigorously concerted campaign of arguments, all marshaled in a single direction, at, least until those who disagree find time to think through a reply. There need be nothing sinister in such a concerted drive--that is the way most new ideas make their way. But to take the first upsurge of favor for the new as being "the wave of the future", or the "idea whose time has come", or as being proof of "imminent consensus", or of "practical unanimity" is to show a greater naiveté about contemporary formation and manipulation of opinion than is becoming in a professional person.

It is often implied that a consensus among neurophysiologists and neurologists is all that is needed, since they alone are in a position to have true scientific understanding of these matters. But while they are the best qualified to do the needed research in this area and to develop the theoretical explanations of their findings, such an argument would seem to show more than a little contempt for the powers of others to understand either the results of those researches or

their methods and theoretical bases. Also, it is hard to imagine the medical and related sciences so sharply compartmentalized that no one outside the neurological disciplines could have anything of worth to offer. Did not many of the exceptions now taken into account by neurologists and many of their proffered criteria begin with the observations and ideas of non-neurologists? And the great sensitivity to the most minute signs and imperceptible alterations of condition developed by many a nurse of long experience would be ignored only at the patient's expense. She could, obviously, be mistaken but may never be simply assumed to be so.

It is perhaps true that only neurologists would have the technical skills to make the final diagnosis in the difficult cases which have given rise to the problem. If the criteria themselves were universally accepted, the care to see them properly applied might rightly be left to neurologists. But scientific certitude about these criteria rests upon perceptions of scientific necessity which are not the sole prerogative of the neurophysiologist.

e) Tendler has argued[126] that one might avoid the practical consequences of the dispute concerning the supposed equivalence between the destruction of the brain and death of the person in the following manner: wheel the person with the destroyed brain into the operating room or appropriate laboratory; when all else is ready, simply turn off this person's ventilator, since it cannot, on any supposition, preserve even the appearance of life beyond a few days; then, after he has died (in the ordinary sense)--a matter of minutes only--take his organs or do whatever is to be done.

Reasonable as this might seem as a solution in view of the principles enunciated above,[127] it is unlikely to satisfy any physician who wants vital organs for transplant or research. He needs these organs alive, even though the whole body before their excision is declared dead, since, e.g., for heart, liver, and lung transplants these organs would suffer serious deterioration if the donor is permitted to die (in the common-language sense) before excision. Implicit is the Cartesian notion that a person may be dead though his entire body, apart from his brain, is indisputably alive and functioning as a single organism and, in some highly restricted yet true sense, healthy.[128]

Ramsey[129] has suggested, for somewhat different reasons, that it be made standard procedure to turn off ventilators as soon as total destruction of the entire brain has been diagnosed with certainty, but that there be no change in what counts for death medically. This suggestion, like Tendler's, would permit kidney transplants and some research activities but would severely limit or prevent others. However, in terms of the moral principles sketched above, both approaches could, with some qualifications, be legitimate.[130]

2. When inquiring into the religious status of brain-related criteria of death, we must also take into account the possibilities of dehumanization resulting from their use. These possibilities are fairly obvious when it is a matter of excising vital organs from those who appear to be alive, but are no less real in contexts where there is no thought of organ-removal. Since this is not a moral treatise, the authors can only point out some of the elements that call for more detailed consideration in this context.

a) Jews, Christians, and Moslems are in profound agreement that power and strength, whether bodily, intellectual, moral, or social, exist in large measure for the aid, support, and defense of those who are weak and powerless. Governments exist to defend those who cannot defend themselves.[131] To settle doubts as to the status of one whose brain alone has been destroyed, simply by declaring him dead and treating him in such a way as to kill him if he is not, must, then, be morally suspect, for it hazards what life may remain in the weakest of all for the advantage of someone stronger than he.

The dehumanization of our society which could be produced this way is not easily visible, perhaps, precisely because it is already well advanced. For example, the turning off of ventilators or other support-systems, triage, and the like may be at times permissible, even morally required. But in this nation, which spends $16.5 billion a year on tobacco products, $28.2 billion in alcoholic drinks, $18 billion on TV-sets, music-recordings, and other pleasant but hardly necessary items, we hear those same actions being advocated solely in terms of economic advantage to society, as if we could not afford public support for such medical "luxuries".[132] One does not have to look far to find complaints about having to support those incapable of "meaningful" interaction with others or who are "unable to contribute" to society, those once called "useless eaters" in a similar social system.[133]

A subconscious awareness of the infiltration of this evil may be a major reason for the astonishing popularity of Mother Theresa of Calcutta among people who seemingly have no relationship at all with her basic work. The lesson she offered so visibly and unmistakably to the

world is that it is an enormous good that the living and strong spend their powers in helping the dying to live, at least a few moments, loved by other human beings as God loves them, for themselves, as they actually are or can yet be, not for their powers or contributions. The hoped-for strength or health of some cannot be grounds for neglecting others, though the inability of the dying to profit from what treatment is available may be a legitimate reason for ceasing that treatment, as suggested by Ramsey (cf. III. Lc.).

Another indication of dehumanization can be seen in the increasing tendency to regard an organ transplant no longer as an extraordinary gift of someone else's charity, a gift all the more precious and gratuitous for being subject to much-needed precautions not to kill the donor, but as something to which the recipient has a right because those organs might prevent his suffering and death. The point here is not primarily the endangering of the donor's life but the failure of the relatively strong to perceive the greatness of the privilege that is his in being recipient of such a gift from the most weak. Once people have come to claim as their right what is of its nature the purest gift, the stage is set for taking what does not belong to them even when it involves the risk of killing those to whom it does.

The new principle which allows or even calls for free utilization of human remains by the living has yet to receive any moral or religious analysis capable of justifying it. It may be doubted that any is possible. The corpse still belongs to God, or is so related to Him that reverence for it, not desire to subject it to our uses, is the only proper attitude for the living. To the extent that a person can and does act in God's name, he can rightfully make disposition of his

remains for another's benefit. But it is not clear that others can do this on his behalf. Certainly, this cannot be done when neither his free consent nor that of his next of kin has been given. Yet our laws tend increasingly to permit the taking of organs without such consent, making little or no provision for a refusal, yet letting public authorities make use of the corpse where such a refusal is not immediately at hand.[134]

c) Medicine, perhaps more than the other professions, runs the risk of dehumanization since medical professionals must learn to check their feelings in the presence of pain and grief if they are to provide the quality of care needed by their patients. All the more, therefore, they must guide themselves by settled convictions concerning the true good of their patients. For them to learn to resolve doubts as to the presence of human life by destroying it, if present, conflicts in a special way with their humanity. But beyond this fairly obvious difficulty, there seems something inhuman in a surgical team's operating destructively on a still-living "cadaver", even if they are convinced the person is dead. Their whole training has readied them to perform surgery only for the benefit of the patient on the table. Neither they nor society profits from having them become ambivalent--sometimes healers, albeit with the knife; sometimes killers, albeit only of the still living bodies of those they call "dead".

d) The onus cannot rest solely on physicians. Even the most hardhearted of them would not do these things if the rest of us did not desire to have them done. It is generally not the physician who is the willing, often eager recipient of transplants so ambiguously obtained. Perhaps his chief disservice to us is in agreeing to our, often unexpressed, desires.

Few things cut more directly into the roots of our humanity than the fear of death, a fear both masked and manifested by our longing for a secular immortality, for an indefinite continuation of life as we have known it. When allowed to grow strong, this craving for further life can be extremely cruel.[135] Surely, one's humanity is drained away by refusal to face painfully ambiguous situations as what they are for fear of what might be the consequences for ourselves. Is there not a danger, then, in this willingness, even this passion, to support some lives by a means that may be extinguishing others, before medical progress has fully clarified the situation? Why should the legal profession be so quick to act in spite of the medical obscurity?

e) A major motivation for introducing "brain-death" legislation, which has been mentioned so far only in passing, is to provide both next of kin and physicians with a less painful way to reach the decision to cease treatment. Many people seem unable to bring themselves to consent to the stopping of treatment for their patients or their loved ones, no matter how hopelessly injured or ill, if still alive. To avoid, then, the prolonging of needless grief (and the quite useless expense with which it burdens families, hospitals, and society), it is argued that we should define those "people" as dead whose brains have irreversibly ceased to function so that needless treatment might necessarily cease.

Yet, however harsh it may sound to say so, such an approach seems both inhuman and dehumanizing. Avoidance of reality is a poor way to salve anyone's conscience. Shirking an agonizing responsibility does little to mitigate grief over the long haul. The grief of deciding to cease treatment, with its haunting doubts afterward about whether one has done the right thing or

not, is small in comparison with the remorse of conscience of one who has knowingly consented to what he thinks deep down to have been a lie.

And where would such redefinition stop? Hard cases concerning cessation of treatment exist far beyond the confines of "brain-death." Shall we alter the law so that every non-competent patient concerning whom there is a painful question about the usefulness of further treatment is to be declared dead? If so, we are far beyond "brain-death", even beyond "neomorts". As novelist Flannery O'Connor said, pity without principle leads only to concentration camps...or beyond.

Yet, useful legislative action is possible in this area. As indicated in Section 11.2 above, it is clearly admissible to introduce into law, in addition to the category of the "dead", a further category of "those beyond treatment." People who belong in the latter category but not yet in the former would not be subjects for vital-organ removal but would be allowed to die without further treatment.

f) A tendency is manifested throughout the entire history of "brain-death" legislation to replace physicians' best medical judgment with a list of criteria, contextless legal norms, which can only injure a human approach to medicine (c.f. *supra* I.2., text to notes 26-29). Worse yet, the expense and the abuses eventually involved in transplantation, as these procedures become more common and further vital organs can be transplanted,[136] will soon bring in or occasion an imposition of federal guidelines and bureaucratic regulation far removed from either sound

medicine or the will of ordinary people. The activity of the President's Commission, with its piecemeal investigation of "brain-death", is a case in point.

To avoid the dehumanization inherent in this contextless, checklist approach with its openness to bureaucratic interference, we propose that any statute on this subject be phrased negatively: "No one shall be declared dead unless such-and-such signs have been manifested." Such a statute has the further advantage of being easily amended, made tighter or looser, as the status of the medical aspects changes.

One point in the discussion of "brain-death" that has not often been squarely faced is that such legislation runs counter to, even tramples upon, the religious convictions of many--and these not among the "cultists" or devotees of short-lived, new religions. The testimony of Rabbi Bleich[137] is clear on this point; there is no good reason, however, to restrict what he says there to Jews. It is just as true of the moral conviction of Catholics and numerous others.

The President's Commission asserts that those who think that patients with permanently non-functioning brains may still be alive "would not be forced by the [proposed] statute to abandon those beliefs nor to change their religious conduct."[138] This is, of course, a rather gross secularism. For, as they go on to acknowledge, "the recommended statute may cause changes in medical and legal behavior," as if medical and legal behavior were simply detachable from, or irrelevant to, one's religious conduct or beliefs. "Urg[ing] those acting under the statute to apply it with sensitivity" and "responding to individual circumstances *after* [a] determination [of death] has been made" [emphasis added] is of small help. Once a person is dead according to the law,

he must legally be treated as such regardless of religious convictions, a point the Commissioners return to[139] when they reject the advisability of a "conscience clause" that would permit the determination to be made according to the criteria accepted by the individual, his family, or his church. They point out[140] "the family's permission [for the determining of death] is not sought."

But the crucial question is nowhere addressed: how is it not inhuman to coerce people against their basic religious convictions, however nicely and politely this is done, when those convictions formed part of the original basis of this society and its system of law and are still the primary ones operative among ordinary people in this society? How is it not, *a fortiori*, inhuman, when an easy and acceptable means is at hand to avoid such coercion, i.e., letting people be declared dead in accord with the older modes or determination, and only these, at least in cases in which potentially lethal action is envisaged? What overwhelming social need is at hand that requires society to make the choice the Commission itself admits[141] is not forced upon it by any scientific evidence? This slighting of the religious dimension of human life and the implicit contempt for those who live by religious faith already signals a profound dehumanization if this slighting is truly a matter of principle and not mere oversight.

3. Finally, there are religious aspects to the question of death which do not directly touch upon morality but involve crucial matters of doctrine, though indirectly these have their implications for the moral order also.

a) The notion of a human being as nothing but a very complex, electrochemical machine can often be detected in the language and argumentation of those who hold that destruction of the

brain is equivalent to the death of the person.[142] Indeed, what is typical of mechanism as a philosophy is that parts always add up to wholes; a whole is no more than an aggregation of suitably interacting parts. Whatever the merits of this viewpoint, it is radically incompatible with the religions here considered. Whatever may be said of the remnant personhood of the sustained but isolated human brain, the human person cannot be considered solely as a corpse activated by a suitably "plugged-in" brain (*cf.* II.3.d. *supra*).

According to the Judaeo-Christian tradition, a human person is the entire, living, human being; body, spirit and/or soul all together in one single, though composite, entity. After death, before the resurrection of the body, the disembodied spirit is conscious and active, enjoying reward or suffering punishment; it is not, for all of that, a complete human person still but looks forward to the resurrection for the fullness of reward or punishment when the person is to be reconstituted integrally.[143]

The fifteenth Ecumenical Council, that of Vienne, in the year 1312 defined that it is heretical to hold that the rational or intellectual soul is not a form--truly, of itself or intrinsically (per se), and essentially-of the human body.[144] A "form of the human body" is that concrete principle of our being that, in its union with our equally concrete materiality, constitutes the human body.[145] The Council identified this form with that spiritual principle that cannot by nature die and through which we are constituted intelligent, free beings.[146]

The fact that *all* doctrines that even bring this identification into doubt are labeled heretical indicates that the Church saw it to be a matter of great importance for Christian faith.

What was at issue was the substantial unity of the human person during life and an understanding of human death as the separation of the intellectual soul from the corpse. It is worthwhile to look at a few of the consequences of these teachings for the determination of death, in order to see that any position taken concerning brain death has close ties to important doctrinal issues.

Evidently, the intellectual soul cannot be held to reside in the brain alone or to animate the brain alone, since it is "form" of the entire body, the brain included. But the question remains open as to just when, criteriologically, the human composite becomes so disarranged and disordered that it can no longer survive as a human being and dissolves into a separated soul and a cadaver (whatever the precise nature of this latter may be).

Someone who accepts both brain death and the conciliar teachings (cf. the positions indicated in the latter half of note 143) seems, all unwittingly, to reduce the human substance to its (intellectual) functions. For, the identification established by the Councils would, in such a context, imply not only that absence of a human body makes all human functioning impossible but that absence of a very few human functions makes impossible the existence of a human body. But if 'human functions' and 'human body' are thus convertible, it is a mere matter of words as to which is to be used. Only one reality is being considered, that to which the term 'function' is ordinarily applied. This Humean view, while obviously not in the purview of these two Councils, seems hard to reconcile with their understanding of the integral and substantive unity of the human person.

Further to argue within the framework of Vienne and V Lateran that the "brain-dead patient" is a living but non-human organism, one must offer some way to determine empirically whether this body that shows no overt signs of intellectual activity is human or not. For, as pointed out *supra* note 58 and 11.3.b, neither intellection nor volition has any least empirically observable concomitant that must of necessity be present. *A fortiori* is this true if one is speaking of a continuing potentiality for thought or volition. But, as was seen in 11.2, a "brain-dead patient" on life-support is, empirically speaking a mortally injured but still living human body. It is, therefore, still a living person, capable by its substantial nature of thought and choice, even if not by present action.

Not only is lack of consciousness in those whose brains have been destroyed undemonstrable in principle, but the mystics speak of the "ligature" of the powers of the soul in ecstasy and some higher forms of mystical union. When the ligature is intense, the senses cease to function, the body becomes immobile, breathing and even heartbeat become undiscernable, and body-temperature drops, so that the person may be thought dead. The *natural* operations of even mind and will are suspended by God's action, so that these remain operative only in the strictly supernatural modes of faith, hope and charity at "the fine point of the soul".[147] Might not such purifying prayer be possible and even frequent among devout believers as they approach death and judgment, even when "brain-dead"?

Not only Catholics speak thus. Lutherans, for example, recently denounced any effort "forcibly to interrupt the movement of man's spirit as it may be communicating through God's

Spirit with His Creator and Redeemer by way of responding in trust and inner yearning"[148] during the mysterious time just prior to death. They explain elsewhere:

> "In some instances it is impossible to determine by ordinary means whether the patient has the capability of reacting to what goes on around him.... Intentionally to bring about the death of an individual so engaged [through the Spirit in "sighs too deep for words"] in communion with the heavenly Father would constitute a blasphemous intrusion into a sacred relationship prevailing quite beyond the farthest reaches of human knowledge and personal awareness.[149]

The common teaching of the Catholic Church concerning the sacraments offers examples of the practical difference that can exist between permanent unconsciousness and death. For example, consider the situation of an unbaptized person who has sinned often and mortally during his life. Suppose he had intended eventually to be baptized but always deferred action. He has now suffered massive brain damage which renders him totally and irreversibly unconscious. If he is in fact dead, then apart from some wholly extraordinary intervention of God, he is already suffering eternal punishment. If, on the other hand, he is still alive, no matter how hopelessly damaged, he is still capable of receiving baptism. If he is then baptized, when he comes to die he will enter heaven at once through this purely gratuitous gift of God. Such a difference between heaven and hell is presumably the most practical of all questions for the person involved.[150] Similar arguments can be constructed with regards to the sacrament of the

sick, through which God remits grave sin in the unconscious according to common practice and teaching.

There seems nothing directly analogous to such Catholic doctrine elsewhere. Yet, the Lutheran text just quoted shows that the idea that what happens between the last signs of "brain-life" and a person's death may prove of enormous practical value to him is not alien to other religious traditions as well.

IV.

"Brain-death" legislation has been urged upon us as the solution to a number of difficult medical and legal problems. But those who favor such legislation have to show two things if they are to make their point: that this legislation responds effectively to the problems for whose sake it was introduced; and that it will not beget other problems of at least comparable gravity. It would seem, however, that this legislation does not solve the problems it was intended to meet (Section 1); and that, in fact, it generates even more difficult problems (Section 3). In Section 2, consideration will be given to what legislation in this domain might be appropriate.

1. a) The point most frequently, even insistently, urged is that, due to medical progress, it is impossible in many cases of brain damage to apply the older heart-lung criteria; one can no longer tell using these alone whether one is treating a corpse or a living person.[151] Since it is essential in a great many areas of law to know what "death" means concretely, the neurologists' new, brain-related criteria of death must be made legally acceptable in a controlled and uniform manner throughout the country. To do this, the argument continues, "brain-death" statutes are

necessary, for otherwise society is restricted to the common law criteria of death, which are both outdated (recognizing as dead only those who have suffered irreversible cessation of cardiac and respiratory function) and far from uniform. In brief, the law must be made flexible enough to take proper account of medical advances in determining death and, in particular, to make "brain-death" indisputably legal as a basis for the determination of death.

But the supposition that artificially produced ventilation (coupled with other life-support mechanisms) precludes observation of the presence or absence of cardiopulmonary vital signs is incorrect. Even a nonphysician can usually note the pertinent difference.[152]

In consequence, despite repeated protestations of the President's Commission to the contrary,[153] any statute or judicial decision that has chosen to call "death" the condition of those whose respiration and other vital signs are continuing, though only with the aid of life-support systems, has altered the very *meaning* of the word 'death'. On purely philosophical, if not ideological grounds, this meaning is extended to include that status of a person which, on medical and biological grounds, can at most be qualified as "dying,"--hence, still living. May we be pardoned if we do not regard this playing with words as a solution to any problems?

The President's Commission does begin well its treatment of the view of death that is also ours: "death is that moment at which the body's physiological system ceases to constitute an integrated whole."[154] However, it goes on to assert: "This view holds that continued breathing and circulation are not in themselves tantamount to life,"[155] which, if not a truism, serves only to confound ventilation with respiration, even as, in conjunction with the Commission's preceding

sentence, heartbeat is confounded with circulation. On the basis of this confusion, it is relatively easy to slide from the notion of integrated functioning of all the various organ systems to their "*neurologic* integration" (emphasis added).[156]

The Commissioners seek to avoid the charge that they are changing the very concept of death by arguing that both the brain's irreversible loss of function and irreversible cardiopulmonary loss of function are merely diverse criteria for the same condition: death. They claim merely to apply "new diagnostic measures."[157] Not only is this not factually the case, but it would, if true, render futile and void of purpose the Commission's recommended statute. For what other purpose does this statute have than to permit some to be declared dead by "brain-death" criteria who would not be by the traditional approach, whether for theoretical or merely practical reasons?

Hence, this principal argument of the President's Commission is simply a begging of the question. The common law approach is outdated or inadequate with respect to brain-related approaches if and only if a person really is dead, in the ordinary-language sense, simply and solely because all of his brain functions have irreversibly ceased: the very point at issue.

On the other hand, it can be admitted that the earlier, common law approach to death *is* inadequate or obsolete nowadays but for a very different reason: in the context of vital-organ "harvesting," it is too much *like* the "brain-death" approach. It permits those who might still live for a few minutes more to be killed for their organs, even though the chance of such killing is vastly less than in the case of those with nonfunctioning or even destroyed brains since one is

less likely to want vital organs from someone who has already suffered apparently irreversible cessation of all circulatory and respiratory functions.

b) A second difficulty has a somewhat better grounding in reality: doctors and hospitals are confronted with potential liability problems, *e.g.*, concerning the use of life-support systems. If so, then legislation should be designed which addresses itself to those specific situations. If, for example, what is in question is the legality of discontinuing resuscitative or artificial support procedures, it is not evident how any definition of death can avoid legal problems here, but only displace or shift them. The decision to use, not to use, or to cease to use either of these classes of procedure is not equivalent in fact, and should not be seen as equivalent in law, to stating criteria by which to decide whether someone has died or to applying these criteria so as to declare someone dead.

Further, a declaration of death is not--or at least should not be--required generally at law before ceasing treatment ("turning off a respirator").[158] Though killing the innocent is always a grave wrong, ceasing one's efforts to avert a threat to his life arising from some source other than one's own action may be anything from a grave wrong to an act of great virtue, depending on one's personal and professional obligations to this individual, on the possible alternatives, and on a host of other circumstances.[159]

It is true that there is considerable difficulty connected with the formulating of a statute which would properly exempt hospitals or physicians from liability in certain carefully delimited cases. But it would scarcely be more difficult than formulating a suitable determination-of-death

statute. The moral and religious exigencies involved in the former are, if anything, less stringent; there seems less room for strictly medical disagreement; there is a broader range of legal precedent and a smaller chance of extensive damage to fundamental state interests and to basic legal structures. Narrower in scope and more explicit in intent, it would be far more likely to attain its purpose.[160]

As Veith *et al*. pointed out,[161] and as was later confirmed by the President's Commission,[162] there appears to be negligible present risk of courts declaring against physicians or hospitals if they are acting in any reasonable manner. The real concern appears to be the cost in time and money exacted by the necessity of defending oneself should some court action arise. But if this is the problem, let it be addressed squarely, by requiring the lawyer, or perhaps the client, who brings a suit which the court decides is irresponsible, malicious, or harassing to bear the full costs of both sides of the litigation.[163]

As will be shown in Section 3, "brain-death" statutes are not only inept for solving the problems arising from liability and unjust litigation but actually augment the chances for court action.

c) Another genuine problem arises from the obvious need to make optimal use of scarce and costly facilities: the maintenance of those with destroyed brains, whose situations cannot improve, can block the use of these facilities for those who could profit from them or, at least, burdens society with needless costs.

As just seen in b), it is not a change in the mode of defining death that is needed if prolonged treatment of dying patients is to be avoided. As pointed out in III.1, refusal to initiate or continue "extraordinary" treatment of the mortally wounded, especially those whose brains have been destroyed, is under most circumstances morally acceptable to all major religious groups except, possibly, to Orthodox Judaism.[164]

Not only does "brain-death" legislation do nothing helpful for making good use of our monies and facilities, it aggravates the problem. Most of those who oppose "brain-death" legislation would not tolerate continuing "treatment" of those truly dead. But, as seen above,[165] the President's Commission and those medical teams and hospitals that use "brain-death" criteria to declare patients dead have proved willing to continue the treatment of "corpses", in intensive care units as long as their organs can be useful.

d) It is also argued that it is ethically wrong to continue "medical treatment" of a corpse, which ought instead to be removed and decently buried; the law should reflect this ethical consideration.

Who could disagree? But talk about the ethical importance of not dishonoring the dead by continuing to pump blood and air through their cadavers is quite beside the point. The only ethical issue is, "*Is* this a corpse?" Both sides of the debate over "brain-death" are agreed that no further medical treatment is required if the answer is clearly affirmative. The question seems difficult only because two different meanings are being given to the word "death", as seen in a) above. Once this needless ambiguity is removed, the putative difficulty also disappears.

This is not to say that abuses never occur, *e.g.*, because of family-induced pressures, but only that such abuses have no greater standing in the older approach than in the brain-related ones. Once again, "brain-death" statutes have nothing positive to offer.

e) Finally, it is argued that without "brain-death" legislation, there is a perpetual risk that the extraction of vital organs, whether for transplants or research, may be seriously impeded because of the lack of clarity on all sides as to when the organs may be taken. Physicians may back away for fear of prosecution. Families may refuse to let organs be taken from loved ones who still appear to be alive unless the law holds them for dead. And already an outcry is being raised against the hardheartedness of those who would insist upon waiting for certitude as to the death of the donor before taking his organs for transplantation.

In reply, it must be pointed out that, if one goal of a statute is a sufficiency of properly obtained organs, the psychological effect of the legislation must also be considered. A legal provision guaranteeing that no organ will ever be taken while there is any least chance that the donor might yet be alive by *any* reasonable criterion--if coupled with an appropriate advertising of the needs--is far more likely to produce an abundance of organs, voluntarily offered, than a bill which has already begun to cast suspicion on the entire process and upon the whole medical profession.[166] The least effective way to persuade people to donate their bodies or their organs is to pass a law which puts them in legitimate fear of being killed by their physician or hospital for those organs.

Not only is "brain-death" legislation counterproductive with respect to this problem, but the need for transplants is probably transient. The far from negligible failure-rate of vital-organ transplants and the high cost in terms of further illness even in cases of successful transplantation[167] would indicate that transplantation is not the solution-of-choice to the problems presently motivating its use. Better means are still to be sought--whatever abundance of transplantable organs might be available. And, to judge from progress already made, there seems every reason to think that the lack of passable artificial hearts and other vital organs is but temporary. Nor should one forget that medical technology has improved, generally, in direct proportion to the pressure for its improvement. In all likelihood, the knowledge sought by research based on excised but still living vital organs can be acquired by less dubious means, even if more slowly or less directly. It does not seem then, to be in the interest of the state to make, for the sake of these very limited and highly specific needs, such basic changes in its legal structures as are implied by the establishing at law of a new and different definition of death.

2. From the viewpoint being developed in this article, there is, however, one problem which does call for legislation concerned with the relation between the death of the person and the condition of his brain: the courts also have begun to change the meaning of the word 'death' in much the same manner as have the legislatures that adopted "brain-death" statutes. This new case law is unacceptable for all the reasons urged here against the similar legislation. Thus, we do concede that some legislation is needed in this domain, precisely to prevent the courts from continuing to impose "brain-death" upon the states by judicial fiat.

The following statute is recommended:

No one shall be declared dead unless respiratory and circulatory systems and the entire brain have been destroyed. Such destruction shall be determined in accord with universally accepted medical standards.

a) 'Destroyed' and 'destruction' are used here as explained in detail in note 70. It is important to note that 'destruction' represents the only religiously and morally acceptable interpretation of the highly equivocal phrase 'irreversible cessation of function.'[168] For, 'destruction' indicates the loss of structural *potentiality* for functioning, the cessation of the organic *capacity* to function, in accord with the comments in note 70.

The President's Commission seems not to have noticed the enormous difference in reality pointed to by the small difference in words between "loss of function", its usual phraseology, and "loss of the ability to function".[169] The ease with which so basic a change of meaning can be overlooked because of the similarity of wording serves admirably, of course, to make their arguments plausible.

Somewhat disingenuously they remark apropos the brain, "[T]heoretically, even *destruction* of an organ does not prevent its functions from being restored. Any decision to recognize 'the end' is inevitably restricted by the limits of available medical knowledge and techniques. Since 'irreversibility' adjusts to the times, the proposed statute can incorporate new clinical capabilities. Many patients declared dead fifty years ago because of heart failure would

have not experienced an '*irreversible* cessation of circulatory and respiratory functions' in the hands of a modern hospital."[170]

There are several things to note about this paragraph. If the Commission is serious about their first statement, they are admitting our case: brain destruction itself is not equivalent to death since, not even theoretically, can life be restored to a corpse. Further, those patients fifty years ago would not have been *dead* when so declared, as the reversal of heart failure in the identically situated patient nowadays shows, even though fifty years ago no one on earth could have reversed or even conjectured how to reverse that cessation of function. Thus, to have taken the vital organs of those people fifty years ago (or of their likes now) would have been to kill them--then, at least, through ignorance of the facts.

Our insistence on 'destruction' is not primarily a concern with the impossibility of a restoration to function, as the President's Commission misreads an earlier discussion.[171] Not only does death imply no further functioning in the future but no radical capacity to function at the present moment. In other words, the situation hitherto known as 'death', once it has occurred, is totally incapable of being in any way affected by medical progress. The Commission's comments about impossibility of regeneration of brain cells[172] is not only medically muddled (again confusing loss of function, here cessation of metabolism, with loss of being, here the destruction which that regeneration conceivably might remedy) but clearly indicates, as do their remarks on 3 and 82-83, unconcern for what is at the moment the patient's situation. Once again, prognosis, whether of recovery or of total destruction, is utterly irrelevant to any determination

of death; nor is the impossibility of even minimal recovery the same thing as death. For example, one may not shoot through the heart someone who is just beginning to show the first symptoms of amanita poisoning, though, in the present state of pharmacology, if he has ingested a lethal quantity, he is as surely doomed as if his brain had been destroyed.

b) The recommended statute speaks of "systems" since its authors are no more interested than is the Commission in individual cells, tissues, or isolated organs. Death implies the breakdown of the unity of the organism, which unity is served by the intercooperation of at least three organ systems.[173] Thus, the fact of a destroyed heart need not imply concomitant destruction of the circulatory system if, for example, an artificial heart can, for a while, take its place. Since "respiratory" here refers not merely or principally to ventilatory motion but to the effective interchanges of blood-gases with those of the environment,[174] cessation of breathing is not sufficient evidence for declaring death, no matter how protracted; evidence that the biological basis for respiration (at the least, the pulmonary system) has disintegrated is needed. The third system is not named by or for its function, since there is too little knowledge of the variety and localization of the functions of the brain-as-system. But death cannot be declared until each part of the entire group or cluster of brain-parts (cerebrum, cerebellum, pons, etc.) that together constitute the entire brain has become incapable, through its loss of structural integration, of any further unitary activity.

c) Obviously, proof of destruction will rarely be ocular. Whatever indices of such destruction are universally accepted among physicians at the given time are sufficient.[175]

Universal acceptance is required because the statute must be applicable when such potentially lethal action as vital-organ removal is contemplated. "Universal" acceptance does not mean that every single possessor of a medical degree should concur, but that there be no strong, reasoned opposition by professional physicians, especially neurologists, such as can now be found or as was offered, for example, by Claude Beck when pressing his point about "hearts too good to die." For, if the medical profession is deeply divided, even though not evenly, as to the validity of particular ways to ascertain destruction of the vital systems, then, even apart from the moral question of adequate certitude, the door seems wide open for litigation based on the conflicting medical standards.

The destruction itself is determined "in accord with" universally accepted medical standards, a phrase which leaves physicians as a group free from having to follow any particular formulation of procedure, as long as they do not act in violation of standards so widely accepted.

The determination of death can follow upon the determination of destruction of the systems mentioned, but is not itself directly envisaged by the proposed statute. For reasons already given,[176] death is only negatively defined, i.e., as a state or condition that can only be present along with or following upon such destruction; and even this definition is only implicit.

3. Though a number of problems that "brain-death" statutes are likely to generate have been mentioned in passing, several remain to be considered, graver and more profound.

As discussed in 1.a) above, "brain-death" statutes, with the possible exception of that proposed by Capron and Kass, all radically alter the concept of death. A fairly obvious

consequence of this change in the meaning of the word is that more than one concept of death is thereby established at law, a consequence that is most evident in the case of those statutes that, like the UDDA, offer alternative criteria for death.[177]

Such a statute establishes at least three different kinds of "death". A person is "dead" in the case of irreversible cessation of all functions of the entire brain, even if his circulation and respiration and other vital functions continue. He is also, though differently, "dead" in the case of irreversible cessation of circulatory and respiratory functions even if his brain can continue somehow to function for a time, something the Commission regards as theoretically possible.[178] And finally, he is dead if he suffers the collapse and disintegration of all these systems.[179] If these three situations were medically, physiologically, or biologically identical, there would be no need to mention more than the last one,[180] which could stand for either of the others. So, though the Commission argues that there should not be "different 'kinds' of death" or some people [who] are 'more dead' than others",[181] this is exactly what the Commission's recommendation would establish.

The principle stricture of Capron and Kass against Kansas' "brain-death" statute was that "it appears to be based on, or at least gives voice to, the misconception that there are two separate phenomena of death."[182] The President's Commission, interestingly enough, summarizes and accepts the Capron and Kass argument as follows:

> The dual nature of the Kansas statute is its most troublesome feature. The alternative standards are set forth...without a description of how they were to be

> related to the single phenomenon, death.... The two-pronged statute seems to create one definition of death for most people and another, apparently more lenient standard for 'harvesting' organs from potential donors."[183]

Yet, except for a few scattered assertions that death is a single phenomenon, the Commission nowhere shows why the "dual nature" of *their* proposed statute is less troublesome or how *their* "alternative standards"[184] are any better than those of Kansas, except for simplicity of wording.[185]

Another aspect of this difficulty is that, if either general criterion in the UDDA is *sufficient* of itself for a determination of death, then neither, by itself, is *necessary*.[186] Hence, while the patient may be declared dead on the basis of irreversible nonfunction of the brain in spite of continued circulation and respiration (a much desired result of this statute), the patient may also be declared dead on the basis of circulatory and respiratory arrest even though some functioning of the brain continues. The general unconcern about residual cortical functioning shown by the use of the Minnesota and related criteria[187] suggests that the question need not be one of mere logic-chopping. Thus, one might legitimately ask: if circulatory and respiratory functions stop permanently throughout the body, would one then be free to keep alive by suitable perfusion the surgically separated head of the "cadaver" for experimental purposes, as has already been done with infants' heads by American doctors working in Finland.[188]

These conclusions might be avoided by interpreting the UDDA as some sort of incomplete disjunction. But, in a matter of such import, the precise relation of the two criteria then needs to be spelled out clearly in the statute.

It does not help to argue that a single state [death] is being described by means of three different sets of criteria. If so, all three should become applicable at the same moment, when that one state begins, the only difference being in the ease of application or in the expertise required to use one or another set under the concrete circumstances.[189] But their applicability at exactly the same moment is precisely what the President's Commission denies to be the case.[190] Further, for the purposes of organ removal, which though eschewed by the Commission as its principal concern, is surely still a major factor, the irreversible cessation of circulatory and respiratory functions cannot be allowed to take place, no matter how nonfunctioning the brain may be, until all is ready for the transplantation or experiment envisaged, even at the cost of placing the "dead" patient in the intensive care unit.

The same sort of problem arises in less obvious fashion for those statutes that define death solely in terms of the brain and break with linguistic and legal tradition, making 'death' refer to a condition not of the body but of the brain alone.[191] Now, the persuasiveness of these statutes comes from their claim to be simply a more accurate way of stating what was always the way of determining death, identical with this except in the tiny handful of cases where the "brain-dead" are maintained on ventilators.

For, the older criteria are said to be, in principle, merely particularizations of the new ones.[192] Therefore any person declared dead on the basis of a valid application of the older criteria would also be declared dead on the basis of a valid application of the new ones. If, then, there is any difference in the ranges of application, this difference can only be that some people

who could not rightly be declared dead on the basis of the older criteria now will be considered dead. Putting the best construction on things, assume that these are cases where the new criteria are right and the old ones wrong. So far, however, as is now known, someone would wrongly be considered alive by the older criteria and rightly considered dead by the new ones only in situations where artificial means of life-support are in use which would simply serve to ventilate air and circulate blood through what is, in reality, only a cadaver. Now, why in these cases is it considered essential to have a criterion for death's-having-occurred, given that, in these and most other cases, brain destruction is a sufficient criterion for permitting cessation of direct efforts to delay death, that is, for stopping the artificial supportive measures? The only objectively grounded answer would seem to be that the cessation of supportive measures would damage the cadaver and render it useless for some purpose;[193] in brief, it would interfere with successful utilization, for research or transplant, of organs. Thus, the single-criterion statutes are not independent of the purposes for which they are to be used.[194]

Though pushed into the background, the basic question still remains: "Are all persons declared dead in accord with a single "brain-death" criterion in fact dead in the ordinary-language sense of 'dead'?" Logical clarity is gained by an attempt to suppress altogether the traditional notion of 'death' and to replace it with one that lacks any legitimacy on the biological level,[195] where definitions and criteria of death properly belong. This suppressed concept, however, will not simply disappear; the empirical concept of death is more deeply rooted in human cultures, including our own, than any legal action can tear out.[196] We will, instead, have

two concepts of death.

But not only two, as Dr. Molinari has recently pointed out,[197] there are at the very least three practically different ways of diagnosing a "dead" brain, which imply three different definitions of 'death', even when based on brain-related criteria only. Such multiplicity of meaning within the framework of a single-criterion formulation introduces an ambiguity and confusion that is certainly not good medicine and can hardly be regarded as good law.

This effort to force 'death' to mean at law something it has never meant before in either law or common language, and all the while saying that nothing is being changed, is an especially sinister mode of punning when, as has already occurred in the language used by the news media and the courts apropos of abortion and infanticide, it is introduced so as to permit the snuffing out of what are, probably or certainly, human lives. Trusting that the President's Commission was speaking more in accord with its own principles when it stated "the Commission believes that...the statute recommended...must accurately reflect the social meaning of death and not constitute a mere legal fiction,"[198] we would urge rejection of the statute recommended by the Commission; and this, precisely on the grounds the Commission itself offers: "On a matter so fundamental to a society's sense of itself...and so final for the individuals involved, one would desire much greater consensus than now exists before taking the major step of radically revising the concept of death."[199]

If ideological presuppositions seem to warrant the practical action the President's Commission is urging, then let them follow their own principle: "If a special need is identified

for acting on a different basis, a separate status--other than that of being 'dead'--could be defined for that purpose,"[200] the status, say, of being "*in extremis*" or "almost dead" or even "as good as dead". Then at least the issue would be presented to the American people without confusion of language; and the requirement of informed consent to this change of our law and medical practice, mentioned in the Introduction, stands some chance of being met.

We might also point out not only that the legal existence of three, easily distinguishable, time-separated, biologically different kinds of "death" constitutes a major deviation from all the traditions of American law--or any legal system hitherto--but that such a multiplicity does not augur well for the avoidance of suits and other court actions. For, most people, once aware of the concrete implications of the law, will not accept it--"The law, Sir, is a ass."

b) All the "brain-death" statutes, actual or proposed, rely heavily upon a requirement for "usual and customary",[201] "ordinary",[202] "accepted",[203] or "reasonable"[204] standards of medical practice, in order to allow for the context of each concrete case and its particular circumstances. This represents an effort to deal with the serious problem discussed in I.2: that there is no way positively to specify a general criterion of death which is not contingent upon the current state of medical art and science and upon the endless details of an individual situation. Having chosen to make such a positive specification (rather than a purely negative one, such as that proposed in Section 2 above), the framers of "brain-death" statutes must perforce find some way to take into account the infinitely varied physiological contexts in which death occurs. Some provision is also needed to allow for an honest development of necessary operational criteria and tests and to

learn the proper application of all these so as fully to protect the rights both of the patient and of others. Unfortunately, none of the "brain-death" statutes handles the matter well.

(i) The phrase "reasonable medical standards" emphasizes the important point that abusive standards would not be tolerated. Yet this wording would introduce considerable uncertainty into the operation of the courts, thus working directly against one of the chief reasons for having a "brain-death" statute. Given the traditional role of the courts to resolve controversies over the development of "reasonable" standards in any field, it is difficult to see how this sort of statute will reduce the threat of litigation. The President's Commission sets aside "reasonable standards" for the related reason that lay jurors would be placed in the position of judging the reasonableness of professional behavior.[205]

(ii) The Commission, while opting for "accepted medical standards", offers no criticisms of "usual and customary" or "ordinary medical standards." In fact, by its recounting, with no suggestion of disapproval. Idaho's equating of "accepted standards" with "usual and customary" ones, the Commission would seem to see all three wordings as at least roughly equivalent,[206] presumably because all three of these wordings "intend the same result".[207]

A major problem with "usual and customary" or "ordinary" standards lies in the underlying assumption that any truly ordinary or usual and customary standards are available. Serious question may be raised as to the validity of such an assumption when there is such deep disagreement over the meaning and the significance of "irreversible cessation of total brain function" as indicated in Parts I-III.

Moreover, "usual and customary standards of medical practice" seems a vacuous phrase to apply to a field where the first serious effort at definition and criteriology appeared only fifteen years ago, where substantive revision or substitution has been carried through every few years since, and where current research efforts at transplanting brains and keeping them alive in chemical media will call for continuous reassessments. What can "usual", or "ordinary", or "customary" signify on so short a time-scale? Considering how rapidly "the usual and customary standards of medical practice" have changed in what for centuries seemed permanent areas of medical consensus, e.g., the former medical refusal of sterilization, abortion, infanticide, and euthanasia, it is questionable whether this phrase would suffice for the preventing of abuse.

This difficulty is obvious enough to suggest that "usual", "ordinary", and "customary" were not intended to refer primarily to long duration in time, to either perduring usage or immemorial custom, but rather to what is considered unsurprising, taken for granted, or currently acceptable. That such is the case was made explicit by Dr. McCarthy DeMere, who was chairman of the committee which drew up the resolution "defining" death that was approved by the ABA.

According to Dr. DeMere, the standards in question "are determined by the medical profession and at present vary both geographically and from hospital to hospital...[208] He declared elsewhere that even "within the same hospital, there are different standards [for t]he pronouncing and determination of death", or, as he said later, "...standards varied from emergency room to the coronary care, to the intensive care, the ward, the entire hospital....[209]

As mentioned in Part I.1, such diversity of standards has, in the past, been of minimal importance. The basic definition and general criteria were clear and unvarying, the tests for their verification were usually straightforward, and the consequences involved, at most, a proper medical judgment as to whether to treat or not. Of killing, there was usually no question. Now, with killing often a certainty if a mistake is made and with lack of complete agreement even among neurologists as to what constitutes a fully adequate set of tests, a greater and more serious diversity of standards would be introduced. Worse, this diversity would now be built into the general criterion itself; it would become legitimate to declare a person dead by "usual and customary standards" even if these happen to be abusive.[210]

(iii) The practical difficulties associated with multiplicity of standards will be no better met by the President's Commission's choice of "accepted medical standards." The Commission remarks, "Procedures for certifying time of death, *like those for determining the status of being dead*, [our emphasis] will be a matter for locally 'accepted medical standards,' hospital rules and custom, community mores and state death certificate law."[211] Now, there are well over thirty sets of criteria for diagnosing irreversible cessation of total brain function(-s, -ing)" which are accepted by some recognized medical group or other,[212] yet these sets differ practically. An organ donor declared dead by one set, would be alive by another; judged according to one set he is killed when his vital organs are extracted, whereas according to another his cadaver is being rightly treated according to his intentions. As the President's Commission itself remarks, "[A] persistent diversity of standards on a matter as fundamental as the 'definition' of death does not

seem desirable. There is nothing to applaud in the prospect that small, and perhaps inadvertent, differences in the opinions of the highest courts in two neighboring states might make a 'live' patient 'dead' as the ambulance carrying him or her crosses their border."[213]

Further, since at least some of these criteria are abusive,[214] the mere fact that they are "accepted" by some group of physicians or other would seem insufficient assurance to ground potentially lethal actions. Yet, to the question, "How widely accepted?" the Commission replies only: "The statute does not require a procedure to be universally adopted; it is enough if, like any medical practice which is later challenged, it has been accepted by a substantial and reputable body of medical men and women as safe and efficacious for the purpose for which it is being employed."[215] Only "wholly idiosyncratic standards or the use of experimental means of diagnosis (except in conjunction with adequate customary procedures)"[216] are explicitly eliminated from consideration.

Nor, were the Commission's statute made into law throughout the United States, would the matter stop there. Even now, there would be little difficulty in finding enough physicians to set up an "accepted" set of criteria taking destruction of the cortex or irreversible coma as "personal death" and many more writers leave this question pointedly open.[217]

Already, an aspect of "accepted medical standards" that is crucial in this context seems to have escaped the attention of the President's Commission. Their recommended statute defines as dead one "who has sustained...irreversible cessation of all functions of the entire brain, including the brain stem", where the last phrase is repeatedly pointed to as a sort of ultimate demonstration

of the rigor of the general criterion in question;[218] it is the *whole brain* that must have ceased to function. Yet, "[a] determination of death must be made in accordance with accepted medical standards". Now, the fact that the "Guidelines for the Determination of Death"[219] first appear as Appendix F of the Commission's Report[220] and that the British criteria (accepted without embarrassment by the Commission[221]) and the other sets of criteria derived from the first Minnesota criteria (1971) are nowhere criticized in the Report, seems to indicate that these ever more widely accepted sets of criteria are in accord with "accepted medical standards". Yet, as seen,[222] these criteria, though claiming to show when the whole brain is dead, do *not require* any tests which would show that the cortex has already ceased to function.

The unofficial "Guidelines", since facilitated by the Commission and published as part of its Report, even though not "passed on by the Commission" nor presented for governmental action,[223] show at least how the medical people most highly regarded by the Commission might go about interpreting their statute. Apropos of "brain-death" the signatories of the "Guidelines" remark, "The 'functions of the entire brain' that are relevant to the diagnosis are those that are *clinically ascertainable*" [emphasis added]."[224] At one blow, the apparent rigor of the statute's wording is demolished. If the cortex is still functioning but is wholly cut off from manifesting its activity clinically by damage elsewhere in the brain--something that does occur and which an EEG can clearly show--then this functioning (which could involve imagination, emotion, memory, etc.) is suddenly made irrelevant to the person's life or death."[225] Indeed, the "Guidelines" go on to state, in full consistency with the last quoted remark, that the use of the

EEG is not required in general, though "medical circumstances *may* require the use of confirmatory studies such as EEG...." [emphasis added]."[226]

(iv) If a major interest of all sides in this matter is the avoidance of excessive litigation, none of the above wordings seems an efficient way to achieve this end. Even without abusive standards, there would likely be an abundance of lawsuits grounded on such manifest diversity and imprecision.

Even apart from differing standards, as Toole points out,[227] the exact moment in which to declare someone dead on the basis of irreversible cessation of brain function is necessarily a matter of fairly arbitrary choice, one which can be easily manipulated for the sake of less than noble motives.[228] But with different standards built right into the statutes, a well defined moment of death will have wholly vanished, a situation not calculated to cause a decrease of litigation.

As the Commission remarks, "When the time of 'brain death' has legal importance, a best medical estimate of the actual time when all brain functions irreversibly ceased will probably be appropriate. Where this is a matter of controversy, it becomes a point to be resolved by the law of the jurisdiction. Typically, judges decide this on the basis of expert testimony--as they do with a contested determination of unwitnessed cessation of cardiopulmonary function."[229] But in so speaking, the Commission neglects an important difference between the traditional approach to the determination of death and the brain-related approach: the former seeks to ascertain a point in time that is reasonably well defined physiologically; in most cases of "brain-death", no such

moment exists, even in principle.[230] As the President's Commission itself asserts: "at the moment of cardiac failure, one can almost see the life pass from a patient, while from the other [declared dead by brain-related criteria] it has slipped away so stealthily that its image lingers on."[231] Less poetically, no tests show, except in some cases of massive physical destruction, just when the last portion of the complex cluster of structures which form the brain has stopped functioning or when that stoppage has become irreversible.[232] We do not even know the etiology of such irreversibility in many cases.[233] The indeterminacy so introduced seems certain to work against even those state interests mentioned under *(i)* at the very beginning of Part I.

At the very least, in the phrases being discussed, "usual and customary", "reasonable", "accepted", and the like should be replaced by "universally accepted." It should be specified that "universally" would be used strictly (to indicate acceptance or, at least, non-opposition by all or almost all of the medical profession) and not loosely, as some tend to use it (relating to some indefinite many). For as indicated earlier,[234] one of the great difficulties in this whole matter is the haste with which it has been pushed, long before the medical and scientific bases for any action have been made clear or a scientific consensus reached. This work should precede statutes, not follow them; for, if left to follow, it is likely not to be done at all--a situation not merely religiously unacceptable but a betrayal of the law's basic trust to protect the innocent.

c) A further problem arising from "brain-death" law is the resort, primarily and principally, to non-rebuttable presumptions concerning a person's death: if not dead as presumed, he soon will be, once he has been cut up for research or transplants.

While the element of presumption is most evident in the ABA formulation, "shall be considered dead," yet that only makes visible what is generally the case: that the irreversibility of cessation of total brain function is always and solely a presumption unless one has already established destruction of the entire brain,[235] and that to identify the death of the person with the destruction of his brain, when the rest of his body is alive, is at best a presumption.[236]

In this context, to say instead that a person "is dead" according to these same criteria and observations is less than frank. What is meant is that he is going to be presumed dead and dealt with accordingly. Thus, the Commission's Report remarks, "The view that the brain's functions are more central to 'life' than those of the skin, the liver, and so on, is admittedly arbitrary in the sense of representing a choice. The view is not, however, arbitrary in the sense of lacking reasons."[237]

We would assuredly not consider the Commission's "choice", that is, its presumption as to the facts, "arbitrary in the sense of lacking reasons" any more than we would deny reasons for most other legal presumptions. But non-rebuttable presumption it remains. Yet laws and statutes cannot change physical facts. The medically ascertainable condition that is designated in ordinary language by 'death' is such a fact. And the (perhaps) medically ascertainable condition of someone whose body is functioning though his brain has been destroyed is such a fact. Equally factual is the physiological and biological difference between these two conditions. A radical identification of these disparate conditions is not a fact but, at most, the conclusion of a debatable philosophical or theological argument. The facts occur regardless of legislative

definitions; the law should not take sides on merely philosophical or theological arguments, certainly not in a sense contrary to what is accepted by the majority of citizens; and a positive legislative pronouncement on the subject is of consequence only if we choose to engage in a fiction.

Resort to a presumption as to a person's death, then, in the context of potentially lethal action, represents a choice in favor of some ostensible public good (availability of organs for transplant, for example) over the dying patient's "right to physical inviolability until his death has been conclusively proved."[238] How far does this choice take one down the "slippery slope" toward "legal machinery initially designed to kill those who are a nuisance to themselves that may someday engulf those who are a nuisance to others"?[239]

If this seems overly strong, note that the Supreme Court has already professed not to know when life begins.[240] The difficulties it claims to have in that regard make it likely that the Court will profess equal ignorance as to when life ends.[241] Since it chose as its legal presumption that alternative which least safeguarded the human life which it admitted might be present, it seems not improbable that the court will opt for the least secure alternative when life is approaching its end.

d) An obvious legal problem is that of conflict of interest on the part of those making a determination of death. Such a conflict can occur at several levels. The Uniform Anatomical Gift Act makes some effort to rule out the grossest sort, where the physician declaring someone "brain-dead" would stand to profit financially, himself or his relatives, from the result of his

declaration.[242] But the drafters of this act give no indication that they thought of anything other than transplantation of organs as the source of profit. Thus, they fail to make provision for exclusion of other kinds of advantage such as professional advancement through research made possible by immediate autopsy, or the like. This sort of professional advancement in reputation or prestige through the results of one's aggressive activity on the corpse--if corpse it be--represents an interest that is in obvious conflict with the best care of the patient.

A third and less unworthy sort of conflict is that arising from the desire to save another patient's life through the use of the body of the one to be declared dead, whether directly as in organ transplants or indirectly through the result of one's research. The difficulty with this conflict is that it is not easily controlled by legislation. Even if the physician declaring death has absolutely no personal interest at all, this altruistic motivation can be strongly operative if he knows that transplantation or a particular kind of research is being contemplated. But, altruistic or not, it can still prove lethal to his patient.

Further, at still another level, there is the interest constituted by sharing in a common profession. This can range from selfish motivation (e.g., desiring not to be thought ill of by the experts in one's field or fear of being ostracized professionally) to considerations of the need for unity within the profession for the sake of the common good (e.g., lest everyone suffer because the public would no longer trust the medical profession.) There is finally the most difficult conflict to resolve: should one submit one's judgment to one's peers' because of the improbability that so many professional people would be wrong, and so terribly wrong? This aspect of the

professional bond is an extremely powerful motivation, no less strong for being often unperceived. Yet what else could lead physicians, when acting as members of ethics committees for example, to approve general or operational criteria of death of which they strongly disapprove personally and which they would never use on any of their own patients.[243]

e) One should also note the problem involved in establishing legal precedent for legislative intrusion into medical matters. As stated by Burns and Hamlon,[244] "To have a law tell the physician when he should or should not pronounce a person dead is unprecedented. Will the law then feel it necessary to extend its influence into areas of medicine that, in the future, become problematic or sensitive? Underlying any legislative action on medical matters is the implication that proper medical practice can best be determined by what is legal."

In practice, once brain-related criteria have been universally accepted at law, the option to determine death in accord with the older criteria, at least for patients on ventilators, will be effectively closed off.[245] This shutting off of options is, evidently, not a matter of pure logic, but will be as effective as if it were. Insurance companies (not the least of which is the federal government through Medicare and Medicaid) will not pay for, nor will hospitals' utilization committees permit, treatment to be continued for a patient who is "brain-dead."[246] Moreover, the criteria for "brain-death", as seen in b.(ii) and (iii) above, are to be those of the hospital or even of some unit within the hospital. What the patient's physician thinks about the criteria to be used will cease to matter.

There is some talk, indeed, of letting patients determine which basic criterion of death they wish for themselves.[247] The legal complications connected with "living-will" legislation are well known.[248] Yet this latter seeks merely a non-abusive formulation of a much simpler option than Veatch's. Further, in view of the difficulty of obtaining "conscience clauses" from legislatures (and maintaining them in the courts) in matters of sterilization or abortion (where none of the alternatives compare as to expense with the financial gains or losses connected with continued life support, transplant, and the like), such suggestions need hardly be taken seriously.[249]

As mentioned briefly above,[250] one should not neglect the consequences of this further effort to have the law settle a matter of life and death contrary to the perceptions of the majority of the people. As has been the case with abortion, such discordance is often not noticed early on, when commissions and interest-groups are busy with their efforts to change the law. Most people are too busy with their private affairs and too poorly educated to know what the issue is until it is presented to them in concrete cases or in pictorial or other sensible form. Eventually, as with abortion, people do begin to understand what is at stake for their values, and a major movement takes shape to undo what has been done without their knowledge or well-informed consent. Surely none of the supposed advantages of the "brain-death" legislation, even if they were real, could justify the increase in political division and national disunity that would result.

The bills being considered were ostensibly designed to remove the threat of civil liability from doctors and hospitals in certain situations. Since, in the last analysis, these situations

reduce to those where vital organs are to be used for research or as transplants, there seems some disproportion between the relatively small number who might benefit by this legislation and the very great number who would be threatened by it, directly or through its effects on all medical practice and the foundations of our legal system.

The passage of laws defining or giving general criteria of death is, quite understandably, advocated with some fervor by those who are more or less directly involved in the procedures that have given rise to the problems. But, since legislation on the subject of death affects each and every one of us and since more specific remedies for these problems are possible, the legislatures should not alter the basic legal structure of the state's protection of human life for the sake of extremely few, unless and until all doubts and problems have been adequately explored and fully resolved.

CONCLUSION

The arguments of this paper point to the following recommendations and conclusions.

1. All current legislation which establishes general criteria definitions of death based on the condition of the brain should be repealed. If repeal should prove temporarily impossible, at the very least such statutes should be amended so as: a) to substitute the words "complete destruction of the entire brain, including the brain stem" for such words as "irreversible cessation of total brain function"; and b) to remove requirements for spontaneity of any functions; and c) to require that the medical standards to be used be "universally accepted."

This should be "the very least" since there is no proof that the destruction of the brain is equivalent to the death of the patient; medically speaking, such destruction is demonstrably not equivalent. Repeal is preferred to amendment because not even a completely amended statute protects in full the right of each patient to his life or prevents the dehumanization of society through medical manipulation of the living "dead".

The Uniform Determination of Death Act should be rejected by all state legislatures and Congress for the further reason that it expressly introduces alternative kinds of "death" which neither are nor are intended to be equivalent.

2. In place of such statutes, the model statute discussed in IV. 2 above should be enacted:

> "No one shall be declared dead unless respiratory and circulatory systems and the entire brain have been destroyed. Such destruction shall be determined in accord with universally accepted medical standards."

This is solidly based medically and unexceptionable ethically and religiously. Only by this or equivalent wording can the courts be prevented from further imposing undesirable definitions of death, independently of what the majority of citizens think proper.

3. Though the often-alleged over-restrictiveness of the common law is a pseudo-problem (IV. 1. a and d), there are specific problems amenable to legislative resolution which should be addressed by specific statutes, *e.g.*:

a) The special problems of physicians' and hospitals' liability associated with the use of life-support systems can be met by statutes setting limits on what physicians and hospitals can be

required by law to do. A starting point might be found in the Missouri proposal mentioned in IV. 1.b and note 155.

b) The fear of loss coming from lawsuits brought without solid grounds might be allayed by legislation similar to that mentioned in note 158 as recently enacted in Wisconsin.

c) The severe restriction on some kinds of research and organ transplantation brought about by the passage of legislation like that recommended in IV. 2, will be more than compensated for by an increased confidence on the part of the general public and their greater willingness to donate their bodies for legitimate medical purposes.

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NOTES

1. The UNIF. BRAIN DEATH ACT, 12 U.L.A. 15 (1978) (superseded by UNIF. DETERMINATION OF DEATH ACT, 12 U.L.A. 236 (Supp. 1982)) [hereinafter cited as UBDA], in its Prefatory Note, at the end of the paragraph ostensibly devoted to the purpose of the Act, states: "[t]his Act expresses community approval of withdrawing artificial life-support systems when the whole brain has irreversibly ceased to work." The withdrawal of life-support system depends, however, neither morally nor legally upon a person's being *already* dead. Therefore, unless this note represents mere muddled thinking (cf. the examples collected by Capron & Kass, *A Statutory Definition of the Standards for Determining Human Death: An Appraisal and a Proposal*, 121 U. PA. L. REV. 87, 106-06 (1972)), it is a disingenuous diversion of the community's attention from what is in fact being proposed. For a probing and prescient analysis of the social and legal significance of such unobtrusive shifts in medical practice, see Alexander, *Medical Science Under Dictatorship*, 241 NEW ENG. J. MED. 39, 44-47 (1949).

2. We feel justified in this despite the existence of the masterful treatise of VAN TILL-D'AULNIS DE BOUROUILL, LEGAL ASPECTS OF THE DEFINITION AND DIAGNOSIS OF DEATH, 24 HANDBOOK OF CLINICAL NEUROLOGY 787, 822 (1976) (hereinafter VanTill] and the careful analysis of P. RAMSEY, THE PATIENT AS PERSON:

EXPLORATIONS IN MEDICAL ETHICS 59-112 (1970). As will become evident, we agree in large measure with the former author in her discussions of law and logic; with the latter, in his moral analyses. We disagree with both, however, on the significance of the brain for human life, which disagreement requires a recasting of the entire argument and a contrary conclusion as to the moral quality of "brain-death."

3. Agreement with Capron & Kass, *supra* note 1 at 96-99, 106-11 and Capron, *The Purpose of Death: A Reply to Professor Dworkin*, 48 IND L.J. 640, 642-45 (1973), as to the importance of using but one definition of death, precludes the necessity of rearguing the matter here. If a state wishes to use different definitions or, for that matter general criteria in meeting the two different classes of interests sketched above, that is of concern to us only indirectly.

4. It is evident that underneath these jurisprudential positions lies a view of man proper to the Christian, Jewish, and Islamic traditions, a view which for the last 150 years has been under steady assault by those who hold with Feuerbach that, "The only God of man is man himself," whether they apply this to man as species, race, or class (as in Marxism) or as individual (as in secular humanism). Since this article explicitly argues the topic of "brain-death" from the former jurisprudence and, in section III, from the explicit religious traditions mentioned, we feel no obligation to offer alternative statements from an essentially alien jurisprudence.

5. Approximately five states have adopted a "brain-death" law by judicial action. *See generally In re* Bowman, 94 Wn. 2d 407, 617 P.2d 731 (1980); Levato V. District Court, 601 P.2d 1072 (Colo. 1979); State v. Fierro, 124 Ariz. 182, 603 P.2d 74 (1979); Commonwealth V. Goiston.

373 Mass. 249, 366 N.E.2d 744 (1977), *cert. denied,* 434 U.S. 1039 (1978). A summary of all earlier relevant judicial decisions is contained in President's Commission Report, *infra* note 8, at 136-46. Note more recently: *In re* Haymar, 115 Ill. App. 3d 349, 450 N.E.2d 940 (1983).

6. Capron & Kass, *supra* note 1, at 111.

7. 100 A.B.A. Ann. Rpt 231, 231-32 (1975).

8. The American Medical Association, after many years of opposition to such legislation, finally approved the statute in 1979; *cf.* DEFINING DEATH: A REPORT ON THE MEDICAL, LEGAL AND ETHICAL ISSUES IN THE DETERMINATION OF DEATH, President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, at 117-18 (July, 1981) [hereinafter PRES. COMM. REPORT].

9. UNIF. DETERMINATION OF DEATH Act, 12 U.L.A. 236 Historical Note (Supp. 1982) [hereinafter UDDA].

10. PRES. COMM. REPORT, *supra* note 8, at 2 and 119.

11. *Id. at* 109-34.

12. KAN. STAT. ANN. & 77-202 (Supp. 1971).

13. These are better called "general criteria of death." This language is suggested by some important remarks of Capron & Kass, *supra* note 1, at 102. "Death," they tell us "can be defined purely formally as the transition, however abrupt or gradual, between the state of being alive and the state of being dead." They go on to indicate "four levels of 'definitions' that would give substance to this formal notion": the "basic concept" of death, "general physiological standards"

designating the physiological condition which corresponds to "the state of being dead," "operational criteria" describing the general physiological standard in terms of directly observable bodily functioning, and "specific tests" which check for the presence or absence of these operational criteria.

The "purely formal" definition suffers several defects: 1) The transition in question, though properly enough designated as 'death,' is assimilated by the words "however abrupt or gradual" to *dying*, whereas 'death' refers to the transition only insofar as it has been completed, never insofar as it is still in process. Thus, the time of someone's death is not the interval, sometimes fairly long, in which he is dying. 2) The "state of being dead", which is, after all, the point of principal interest and forms the essential content of the "basic concept" of death, is nowhere considered or defined. Yet, it is this state which is the principal locus of the factual and observable characteristics that enable us to speak of 'death' at all. See Byrne, O'Reilly, & Quay, *Brain*

Death--An Opposing Viewpoint, 242 J.A.M.A. 1985 (1979) [hereinafter Byrne]. We shall see in section IV below that it is an equivocation at the level of this "basic concept" of death that is the central issue underlying any choice or "general criteria". 3) These two defects together render the word 'death' void of content and the arguments circular. 4) Finally, the classic and important distinction between explanatory and verbal definitions is completely overlooked, *id.* at 1985-88, though this distinction would enable Capron and Kass to avoid the prior three difficulties and is

crucial for the present discussion. (Cf High, *Death: Its Conceptual Elusiveness*, 55 SOUNDINGS 438 (1972) for an excellent discussion of some of these points.)

We prefer to speak of 'general criteria' since 'standards' seem unduly positive in this context and we reserve it rather for such things as the regulatory norms of medical practice. Moreover, 'standard', unlike 'criterion', has no essential connection with knowledge, though acquisition of knowledge as to the state of the patient is the entire reason for specifying such "standards". To preserve uniformity of terminology with earlier papers, the authors designate other criteria as "specific" rather than "operational" and refer to "specific tests" merely as "tests."

14. *See* Capron & Kass, *supra* note 1, at 95-101 and D. Charron, *Death: A Philosophical Perspective on the Legal Definitions*, 1975 WASH. U.L.Q. 979, 985-87 (1976).

15. In section IV.2 we shall present our ideas on suitable legislation.

16. For example, Capron and Kass speak in this sense of "medicine's increasing ability to maintain certain signs of life artificially" (Capron & Kass, *supra* note 1, at 87 (footnote omitted)). Later, they remark that:

> The development and use of sophisticated machinery to maintain artifically both respiration and circulation has introduced difficulties in making this determination [of death] in some instances. In such cases, the use of a cardiac pacemaker or a mechanical respirator renders doubtful the significance of the traditional 'vital signs' of pulse, heartbeat, and respiratory movements as indicators of continuing life.

Capron & Kass, *supra* note 1, at 89. DeBakey, *A Medical Perspective,* in MAN AND LIFE, A Sequicentennial Symposium 44,45-46 (1970); Mohandas & Chou, *Brain Death: A Clinical and Pathological Study*, 35 J. NEUROSURGERY 211(1971); Charron, *supra* note 14, at 979; D. HORAN, EUTHANASIA AND BRAIN DEATH--ETHICAL AND LEGAL CONSIDERATIONS, at 2 (1978); Horan, *Definitions Of Death: Current Legal Status*, THE NEW TECHNOLOGIES OF BIRTH AND DEATH: MEDICAL, LEGAL, AND MORAL DIMENSIONS 120,121 (1980) [hereinafter New Technologies]; PRES. COMM. REPORT, *supra* note 8, at 3-6,21-22, 47,58 & *passim*; PLUM & POSNER, THE DIAGNOSIS OF STUPOR AND COMA 313 (3d ed. 1980).

17. Note too, how often these are stated, somewhat misleadingly, solely in terms of cessation of cardiac and respiratory function: Alexander, *The Rigid Embrace of the Narrow House: Premature Burial & the Signs of Death*, 10 HASTINGS CENTER REPORT 25,31 (June 1980); *Standards and Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC)*, 244 J. A.M.A. 453, 505 (1980); Collins, *Definition of Death*, in NEW TECHNOLOGIES. *supra* note 16, at 115 (1980); McFadden, THE DIGNITY OF LIFE: MORAL VALUES IN A CHANGiNG SOCIETY, 200-01(1976) [hereinafter MCFADDEN] where this approach leads him to define someone as dead whose heart is destroyed though his brain is active; WALTON, BRAIN DEATH: ETHICAL CONSIDERATIONS 1 (1980); *cf.* Black, *infra* note 39, at 398 for references to the legal counterpart of this. Compare with High, *supra* note 13, which offers a refreshing challenge to all such statements.

18. Thus, Capron and Kass remark, "[i]f cardiac and pulmonary functions have ceased, brain functions cannot continue; if there is no brain activity and respiration has to be maintained artifically, the same state (i.e.. death) exists." Capron & Kass, *supra* note 1, at 112. (Footnote omitted). *Cf.*, Horan, *Definitions of Death: Current Legal Status* NEW TECHNOLOGIES, *supra* note 16, at 121; PRES. COMM. REPORT, *supra* note 8, at 58 and 74.

19. O'Donnell, *Theological and Pastoral Implications of Brain Death* in NEW TECHNOLOGIES, *supra* note 16. at 138. *Cf.* Pampiglione, Chaloner, Harden & O'Brien, *Transitory Isthential/Anoxia in Young Children and the Prediction of Quality of Survival*. 315 ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, BRAIN DEATH: INTERRELATED MEDICAL AND SOCIAL ISSUES 281, at 282, 288 (J. Korein Ed. 1978) [hereinafter 315 ANNALS N.Y.A.S. unless otherwise indicated], which speaks of "heart-lung preparations".

20. Ramsey, *supra* note 2, at 88-89; Delmonico & Randolph, *Death: A Concept in Transition*, 51 PEDIATRICS 234, 237-38 (1973); McFADDEN *supra* note 17, at 202.

21. Veith, Fain, Tendler, Veatch, Kleiman & Kalkines, *Brain Death I. A Status Report of Medical and Ethical Considerations* 238 J. A.M.A. 1651,1653 (1977) and *Brain Death II. A Status Report of Legal Considerations*, 238 J. A.M.A. 1744 (1977); 315 ANNALS N.Y.A.S., *supra* note 19, at 265, where such a body is twice called "a carcass", and at 16; PRES COMM. REPORT, *supra* note 8, at 35-37.

22. PRES. COMM. REPORT, *supra* note 8, at 23; see Walker, CEREBRAL DEATH (1st Ed. 1977: 2nd ed. 1981); Walker, *Cerebral Death*, 2 THE NERVOUS SYSTEM: THE CLINICAL NEUROSCIENCES 75 (Tower & Chase ed. 1975); Mohandas & Chou, *supra* note 16, at 211; Valaske, *Brain Death--What Does that Mean?*, College of American Pathologists 78, 78 (Feb. 1981); Molinari, *Review of Clnical Criteria of Brain Death*, 315 ANNALS N.Y.A.S., *supra* note 19, at 62; Van Till, *supra* note 2, at 822 (1976); Stuart, *Progress in Legal Definition of Brain Death and Consent to Remove Cadaver Organs*, 81 SURGERY 68, 68-69 (1977); *Refinements in Criteria for the Determination of Death: An Appraisal, Report by the Task Force on Death and Dying of the Institute of Society, Ethics, and the Life Sciences*, 221 J. A.M.A. 48, 51-52 [hereinafter *Refinements]; An Appraisal of the Criteria of Cerebral Death: A Summary Statement, A Collaborative Study*, 237 J. A.M.A. 982, 982 [hereinafter *Appraisal Summary*]; Capron & Kass, *supra* note 1, at 87-89. Often lack of such redefinition of death is mentioned as a major impediment to medical progress or to proper care of patients who could make use of a transplanted organ, *e.g.* Beecher & Dorr, *The New Definition of Death. Some Opposing Views*, 5 INTERNATIONALE ZEITSCHRIFT FUR KLINISCHE PHARMAKOLOGIE, THERAPIE AND TOXIKOLOGIE, 120, and 122-23 (1971); *Organ Transplants; Sensationalism Gives Way to Quiet, Steady Progress*, 5 PARAMETERS IN HEALTH CARE 5, 8 (1980).

23. UNIF. ANITOMICAL GIFT ACT, 8 U.L.A. 15 (1968); *cf.* also, *e.g.*, Missouri H. B. 726, 79th General Assembly, 1977 Mo. Laws--passed. Missouri S. B. 577 (1979)--failed. Though, technically speaking, the Uniform Anatomical Gift Act allows a refusal of the use of organs, by

the decedent or next of kin, it provides no mechanism for ascertaining this refusal save what a stunned wife or parent might think to say if the single phone call required should find that person at home. Only those deceased who have tatooed on their chest, belly, and loins, "Reserved for burial. Do not remove," could be sure that their wishes will be known in the event of sudden death. In the later Bills, only if the next of kin seeks out the coroner, to forbid him to act in a way that most people do not even know he is free to act, is he obligated to leave the body intact. *See also* Quay, *Utilizing the bodies of the Dead,* to be published in ST. LOUIS U.L.J. in Fall, 1984.

24. Stuart, *supra* note 22, at 72; Stuart, Veith & Cranford, *Brain Death Laws and Patterns of Consent to Remove Organs for Transplantation from Cadavers in the United States and 28 Other Countries*, 31 TRANSPLANTATION 238, 239 and 241 (1981).

25. Werblowsky, *Funeral Rites and Customs,* 9 ENCYCLOPEDIA BRITANNICA 1014 (1965); Beecher & Dorr, *supra* note 22, at 123-24. A very brief but pointed analysis of this problem is given in: Fost, *Research on the Brain Dead*, 96 PEDIATRICS 54, 55 (1980).

26. It was their justifiable fear of this tendency that made the A.M.A. slow to approve brain-death" legislation; *cf.* 227 J. A.M.A. 728 (1974).

27. Compare the excellent discussion in High, *supra* note 13, at 441-42 and 445, with Alexander, *supra* note 17, at 28-31 and *Standards and Guidelines for Cardiopulmonary Resusicitation (CPR) and Emergency Cardiac Care (ECC), supra* note 17, at 505.

28. Alexander, *supra* note 17. See also Arnold, Zimmerinan & Martin, *Public Attitudes and the Diagnosis of Death,* 206 J. A.M.A. 1949, 1951, (1968).

29. *I.e.*, "irreversible cessation of spontaneous respiration and circulation", as it is now usually phrased. Taken literally, this is patently erroneous as seen above.

30. Mohandas & Chou, *supra* note 16, at 216-17; note that the tracings in fig. 1, at 215, would appear somewhat different if the international standard calibration or 2 μ*v/mm* were employed (i.e., increase the ripples by factor of 6.25.) *Cf.* National Institute of Neurological and Communicative Disorders and Stroke Monograph No.24, The N.l.N.C.D.S. COLLABORATIVE STUDY OP BRAIN DEATH at 187 (N.I.H. Pub. No.81-2286, 1980) [hereinafter N.I.N.C.D.S. STUDY] with regard to the "Minnesota criteria."

31. Arnold, Zimmerman & Martin, *supra* note 28, at 1953; Alexander, *supra* note 17, at 29.

32. The wake was originally a watch over the dead. The community thus satisfied itself, in days when physicians were not much more knowledgable on the subject than others, that this person had indeed died. Gradually, after the Renaissance, as medical science developed, the physician's word became sufficient. Then, as embalming became almost universal in this country during the last hundred years, the wake became a formal and ritualized mode of condoling with the living; it is no longer a service for the protection of the person seemingly dead. In most places, a corpse can be turned over to an undertaker for embalming without a death certificate or physician's examination, though burial cannot take place under these circumstances. This fact raises the question whether our culture has thrust upon the undertaker the onus of guaranteeing that no one

will be buried alive, but without the burden to our own conscience associated with the once common, though evil, practice of stabbing the putative corpse through the heart "just to make sure." In any event, quasi-universal embalming seems likely to have hidden from physicians, as well as from relatives and society at large, the results of mistaken diagnosis of death. *See* Arnold, Zimmerman & Martin, *supra* note 28, at 1951-52. The stage was thus set for something new to begin. Yet, until fifteen years ago, the purpose of the determination of death remained what it had been, though with an additional emphasis on the physician's freedom to stop all treatment. With a declaration of death, no further efforts of any sort were required. Doubtless, this context explains in part the unremitting confusion today between determining that a person has died and deciding that it is time to cease treatment.

33. Freeman & Rogers, *On Death, Dying, and Decisions*, 66 PEDIATRICS 637 (1980).

34. Veith, *supra* note 21, at 1652-53; Walker, *supra* note 22, at 84; WALKER, *supra* note 22, at 148; PLUM & POSNER, THE DIAGNOSIS OF STUPOR AND COMA, at 313 (3d ed. 1980); Collins, *Considerations in Prolonging Life--a Dying and Recovery Score*, 147 ILL. MED. J. 543 (1975); 315 ANNALS N.Y.A.S., *supra* note 19, at 3-4, 7, 63, 216; Wasmuth & Stewart, *Medical and Legal Aspects of Human Organ Transplantation*, 14 CLEV.-MAR. L. REV. 442, 467-68 (1965); *Appraisal Summary, supra* note 22, at 985. The great controversy which has gone on in England ever since the *Panorama* TV documentary of Oct.13, 1980 on "brain-death" and transplantation has made inescapably clear that the British criteria and the Minnesota and related criteria are capable of giving a prognosis of death only. Thus, one defender of the British criteria

states "[t]he British criteria seek...to equate [brain-stem death]... with a clearly stated prognosis: 'classical' death within a short period." Pallis, *Medicine and the Media,* 281 BRIT. MED. J. at 1064 (1980). He goes on to state at once: "[t]hat the EEG 'reaches parts of the brain that other tests cannot reach' is true but irrelevant. So is the fact that a proportion of patients fulfilling the clinical criteria of brain-stem death may still show some EEG activity," presumably because the presence or absence of such activity cannot alter the prognosis. *Cf* also Prior, *Brain Death,* ii LANCET 1142 (Nov. 22. 1980); Legg & Prior, *Brain Death (Letters to the Editor),* ii LANCET, 1378 (Dec.20 & 27, 1980); Legg & Prior, *Brain Death (Letters to the Editor),* i LANCET 1071 (Jan. 10,1981); Jennett, Cleave & Wilson, *infra,* note 51. The President's Commission (PRES. COMM. REPORT, *supra* note 8, at 28) shows its awareneas of this aspect of the British criteria *and* of the Minnesota criteria, yet goes on to minimize and eventually ignore the crucial difference between prognosis and diagnosis.

35. Molinari, 315 ANNALS N.Y.A.S., *supra* note 19, at 62-63 [emphasis added]; *See also* Valaske, *supra* note 22. Our point here has also been made by: Black, *infra* note 39, at 393, 398-99; N.I.N.C.D.S. STUDY, *supra* note 30, at 184. Evans & Lum, *Brain Death,* ii LANCET 1022 (Nov. 5, 1980); Evans & Lum, *Transplants--Are the Donors Really Dead?,* 281 BRIT. MED. J. 1570 (1980); Poole, *Transplants: Are the Donors Really Dead?,* 281 BRIT. MED. J. 1213 (1980); Poole, *The Brain Death Debate (Letters to the Editor),* i LANCET 502 (Feb.28, 1981).

36. Byrne. *supra* note 13, at 1988.

37. *Appraisal Summary, supra* note 22, at 984.

38. Toole, *The Neurologist and the Concept of Brain Death,* PERSPECTIVES IN BIOLOGY AND MEDICINE 599, at 601, 603-04 (1971).

39. Black, *Brain Death,* i & ii, 299 NEW ENG. J. MED. 338, 393 (1978).

40. Cerebral angiography is an invasive technique used to determine the patency of cerebral blood flow. With this technique needles or catheters are inserted directly or indirectly into one or more arteries supplying the brain and dye, containing iodine to make it visible, is injected into the circulation. Serial films are then taken. *See* ATTORNEY'S TEXTBOOK OF MEDICINE, Vol. 1c, 29 92A.63 (1983).

41. *Appraisal Summary, supra* note 22, at 985; Black, *supra* note 39, at 342; Molinari, 315 ANNALS N.Y.A.S., *supra* note 19, at 64-65; N.I.N.C.D.S. STUDY, *supra* note 30, at 18-19.

42. Walker, ANCILLARY STUDIES IN THE DIAGNOSIS OF BRAIN DEATH, 315 ANNALS N.Y.A.S., *supra* note 19, at 228 and 231.

43. N.I.N.C.D.S. STUDY, *supra* note 30, at *189-90;* Hass & Hawkins, *Bilateral Reticular Formation Lesions Causing Coma: Their Effects on Regional Cerebral Blood Flow, Glucose Utilization and Oxidative Metabolism,* 315 ANNALS N.Y.A.S., 228 esp. 229-40 *(Cf* 130, 161-63, 180-82, 208, 214, and 271).

44. Particularly striking is the case reported by Breivik, Safar, *et al., Clinical Feasibility of Barbiturate Therapy After Cardiac Arrest,* 6 CRITICAL CARE MED., 228, 240, (1978), in which 22 minutes of total circulatory arrest did not lead to an brain damage--the case which saw the inauguration of "cerebral resuscitation". Loeb, *Pathology of Cerebral Death,* 12 THE

HANDROOK OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY 106 (Harner & Nacquet ed. 1974) at 107. N.I.N.C.D.S. STUDY, *supra* note 30, at 191.

45. *Appraisal Summary, supra* note 22.

46. *Id.* at 983; 315 ANNALS N.Y.A.S., *supra* note 19, at 143.

47. *Appraisal Summary, supra* note 22, at 985.

48. *Refinements supra* note 22, at 52.

49. *E.g.*, the Harvard criteria, *infra* note 57.

50. *See, e.g.*, those presented in *Appraisal Summary, supra* note 22, which in turn spun off from the N.I.N.C.D.S. STUDY, *supra* note 3O, and those listed *infra* note 51.

51. Mohandas & Chou, *supra* note 16, at 212, 216-17. Cranford, *Minnesota Medical Association Criteria, Brain Death: Concept and Criteria*, section I & II, 61 MINNESOTA MEDICINE 561, 562, and 600 (1978); Cranford, *et. al., Uniform Brain Death* Act, 29 NEUROLOGY 417, 418 (1979), THE REMOVAL OF CADAVERIC ORGANS FOR TRANSPLANTATION: A CODE OF PRACTICE, [hereinafter British Criteria] Department of Health and Social Security, at 11 and 32-36 (1979). For the connection with the Minnesota criteria, cf., Jennett, Gleave & Wilson, *Brain Death in Three Neurosurgical Units*, 282 BRIT. MED. J., 533, 534 (1981); Institutional Review Board, *A Statement of Policies, Practices & Procedures Involving Studies on Human Subjects at Saint Louis University.* Revised January 1, 1981, at 32; PRES. COMM. REPORT, *supra* note 8, at 162-65.

52. *A Definition of Irreversible Coma, Report of the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death,* 205 J. A.M.A. 337 (1968); Ueki, Takeuchi & Katsurada, *Clinical Study of Brain Death,* Presentation No.286, 5TH INTERNATIONAL CONGRESS OF NEUROLOGICAL SURGERY, Tokyo, Japan (1973).

53. Apnea means cessation of breathing. DORLAND'S ILLUSTRATED MEDICAL DICTIONARY 100 (26th ed. 1981).

54. Walker, *Cerebral Death, supra* note 22, at 84.

55. Posner, *Coma and Other States of Consciousness: The Differential Diagnosis of Brain Death,* 315 ANNALS N.Y.A.S., *supra* note 19, at 221; Posner remarks: "In a patient with destruction of the brain stem, one cannot directly examine cortical function on neurologic examination" but this can be done by EEG. *Id.* at 226. Allen *et al.* sum up their discussion with, "EEG recording is necessary in addition to the clinical criteria in order to avoid incorrect identification of brain death in patients with primary brain-stem disorders and in potential survivors." (Allen, Burkholder & Comiscioni, *Clinical Criteria of Brain Death,* 315 ANNALS N.Y.A.S. 70, 94. *Cf.* N.I.N.C.D.S. STUDY, *supra* note 30, at 20-21.

56. *Cf supra* note 51.

57. In fairness, we should point out that even the more restrictive Harvard criteria leave its use optional: *A Definition of Irreversible Coma, supra* note 52 at 340 (1968).

58. There is no certainty as yet, *see* Van Till, *supra* note 2, at 815-16 or perhaps ever, *see* Veatch, *The Definition of Death: Ethical, Philosophical, and Policy Confusion,* 315 ANNALS

N.Y.A.S. 307, 314, as to how much of the brain is needed to maintain some consciousness. At the very least, the experience of neurologists with the more extreme forms of "locked-in" syndrome suggests that any activity capable of detection by an EEG offers strong grounds for rebutting a presumption of unconsciousness. We say "presumption" since lack of consciousness is as directly unobservable, as unempirical, and as unmeasurable as would be the "departure of the soul from the body" of which so many speak condescendingly if not contemptuously today. The most that science can discover is a total lack of response to all stimuli both internal and external. Van Till *supra* nota 2, at 807-O8. Yet cortical injury is not necessary to bring about this total lack of response.

59. Gaylin, *Harvesting the Dead: The Potential for Recycling Human Bodies,* HARPER'S 23 (Sept.1974); Jonas, PHILOSOPHICAL ESSAYS: FROM ANCIENT CREED TO TECHNOLOGICAL MAN 137 (1974). Roelofs, *Some Preliminary Remarks on Brain Death,* 315 ANNALS N.Y.A.S., *supra* note 19, at 39, 41-42. *Hard Choices: Death and Dying,* transcript of television program, one of six programs produced by KCTS/9 Seattle, Wash., printed by PTV Publications, Kent, Ohio, at 7-8. Rothman, *A Method for Obtaining Viable Sperm in the Postmortem State,* 34 FERTILITY AND STERILITY 512 (1980). Arnold, *Neomorts,* U. OF TORONTO MED. J. 35, 35-37 (Jan.1977).

60. "Supposed good" is used since there can be no genuine common good or true social utility if the basic rights of any individual can be violated for the benefit of others. *Cf.* Alexander, *supra* note 1, at 46.

61. PLUM & POSNER, *supra* note 34, at 224 (2nd ed.), 314 (3d ed.); Mohandas & Chou, *supra* note 16, at 211; Veith, *supra* note 21, at 1744-45: 315 ANNALS N.Y.A.S., *supra* note 19, at 423-25.

62. Let us never forget that all the legal and psychological justifications for killing which Hitler eventually focused on Gypsies, Jews, and Eastern Europeans were already being actively employed for the killing of hundreds of thousands of Germans well before he came to power. And these were justifications which the German medical profession, then the greatest in the world, chose to supply. Alexander, *supra* note 1, at 44; Toole, *supra* note 38, at 604. Cf. BRENNAN, MEDICAL HOLOCAUSTS, VOL.1: EXTERMINATION MEDICINE IN NAZI GERMANY & CONTEMPORARY AMERICA 77-79 (1980); WERTHAM, A SIGN FOR CAIN: AN EXPLORATION OF HUMAN VIOLENCE 154-76 (1966); *see* note 128 *infra,* particularly *Foreign letters: Our Regular Correspondence from Berlin* in the J. A.M.A.

63. Garland, *Care of the Newborn: The Decision Not to Treat,* PERINATOLOGY--NEONATOLOGY 14, 16-17 (1977); McCormick, *The Quality of Life, the Sanctity of Life--A Theological Perspective*, 8 THE HASTINGS CENTER REPORT 30, 34-35 (1978); Morrison, *Death: Process or Event,* 173 SCIENCE 694, 696-97 (1971); Lachs, *Humane Treatment and the Treatment of Humans,* 294 NEW. ENG. J. MED. 838, 838-40 (1976); Veatch, 315 ANNALS N.Y.A.S., *supra* note 19, at 310-12. For summaries and further references, cf. PRES. COMM. REPORT *supra* note 8, at 38-39; Nolan-Haley, *Defective Children, Their Parents. and the Death Decision*, 4 J. LEG. MED. 9 (Jan.1976).

64. The link between this position and the long-abandoned dualism of Descartes is indicated by Isaacs, *Death, Where is Thy Distinguishing? The Brain-Death Debate Continues,* HASTINGS CENTER REPORT 5 (1978).

65. McCormick, *To Save or Let Die,* 229 J. A.M.A. 172-76; Tools, *supra* note 38, at 603 Veatch, *Defining Death: The Role of Brain Function,* 242 J. A.M.A. 2001, 2002 (1979); Pearson, Korein & Braunstein, *Morphology of Defectively Perfused Brains in Patients with Persistent Extracranial Circulation,* 315 ANNALS N.Y.A.S., 265, 265-67.

66. Roelofs, 315 ANNALS N.Y.A.S.. at 44; Garland, *supra* note 63, at 16-17.

67. See, for example, Veatch, DEATH, DYING, AND THE BIOLOGICAL REVOLUTION (1989); Gervais, REDEFINING DEATH (1986).

68. This assumption is most obvious, perhaps in Veith, Section I, *supra* note 21, where these two phrases are continually interchanged and treated as if they were wholly synonymous. But the same assumption appears in WALTON, *supra* note 17, at 13, and in almost all the medical literature on this subject. *This* confusion is carefully and quietly eliminated in, PRES. COMM. REPORT, *supra* note 8, at 32-38; *compare with* 75-76, where it is assumed, with no evidence, that cessation of function can be shown as irreversible as death in the absence of destruction, *see* note 68, an assumption which, since erroneous, vitiates their entire argument.

69. Byrne, *supra* note 13.

70. 'Destroy' is used throughout this paper in its primary sense: "to break down or disintegrate the basic structure of," "to disrupt or obliterate the constitutive and ordered unity of." Nowhere

in this article does 'destruction' imply abruptness or physical violence. For the brain, "destruction" implies such damage to the neurons that they disintegrate physically, both individually and collectively. This is the standard and ordinary usage in the medical literature on "brain-death." It is important to keep this meaning in mind since some confusion among nonmedical people (and even among physicians, as in Veith & Tendler, *In Response to an Opposing Viewpoint on Brain Death*, 243 J. A.M.A. 1808 (1980)) has arisen through their taking of 'destruction' as referring only to gross anatomical disarray (e.g., Veatch, *supra* note 65, at 2001). J. Korein, when speaking before the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, July 11, 1980, highlighted the difficulty, wryly referring to "normal, dead brain-tissue" and going on to make clear that, in the greater number of cases, the destruction that is associated with death is at first internal to the neurons and submicroscopic, often not made apparent to ordinary means of observation until some hours after death has occurred, as judged by any criteria. A brain carefully preserved in formaldehyde may be anatomically intact to the eye; however, it has been as effectively destroyed in the sense used here as if it had sustained gross lesions or complete autolysis, even though this destruction is discernible only at the level of its microstructure.

71. For a brief review in a medical context of the elementary logic needed in this discussion (but so often absent), cf. Van Till. *supra* note 2, at 802-04.

72. Great stress has been laid on the word 'irreversible' by the proponents of these statutes. What must be meant, of course, is 'medically irreversible', i.e., incapable of being reversed by

any means currently known to medicine. No other sort of irreversibility is strongly time-dependent; it may be total today and have vanished altogether by tomorrow. Death is not time-dependent. Unfortunately 'irreversible' is often used by the same writers in the same sense of 'absolutely or metaphysically irreversible', meaning that reversal would be naturally impossible at any time under any circumstances whatever or, even, impossible to God. Apart from the logical flaw in any argument built on such an unperceived equivocation, there is the additional problem that physicians are not, ordinarily, competent metaphysicians and thus would be professionally disqualified from determining when anyone had died. Worse yet, Bernat, Culver & Gert, *On the Definition and Criterion of Death*, 94 ANNALS OF INTERNAL MEDICINE, 389, 390-92 (1981) [hereinafter cited as Bernat] speak of death as "*permanent cessation*" of brain functions [emphasis added]. Yet in many parts of the world, some of the conditions that are medically reversible remain factually irreversible, i.e., permanent. Anyone whose brain has ceased to function due to these now know-to-be reversible conditions and who lives, say, more than an hour away from a suitable medical center and life-support system has suffered a cessation of function that is permanent since it cannot, in fact, be reversed. Though he is not yet, dead, he will certainly die. Yet, surely, his vital organs cannot rightly be excised.

73. Without exception, these statutes couch their general criteria for death solely in terms of *function*. *Cf.* PRES. COMM. REPORT, *supra* note 8, at 117-34. It is this same notion of the human person as merely a collection of functions that vitiates so much of the otherwise useful analysis by Bernat, *supra* note 70.

74. Veith, *supra* note 21, at 1652; 315 ANNALS N.Y.A.S., *supra* note 19, at 32; PRES. COMM. REPORT, *supra* note 8, at 17, 166; Institutional Review Board, *supra* note 51, at 32.

75. Evans & Lum, *Cardiac Transplantation,* i LANCET, 933 (Apr. 26, 1980). The mere fact that there exists no unanimity among physicians as to how one can demonstrate the present state of destruction of the brain (witness more than 30 sets of criteria and the discussion in section I.3.a. about use of prognosis instead of diagnosis) shows that the body's physical unity has not ceased, apart from the damaged portions of the brain, or else this disunity would be the desired sign of brain-destruction. *See* ASHLEY & O'ROURKE, HEALTH CARE ETHICS: A THREORETICAL ANALYSIS 369-70 (1978).

76. The authors distinguish carefully throughout this paper between 'respiration' and 'ventilation'. While the words are often used interchangeably, better medical usage distinguishes them. 'Respiration' refers to a process that takes place throughout the body: interchange of dissolved gases and metabolites across cell-membranes. The respiration that takes place in the lungs has a special importance as that which exchanges carbon dioxide and other wastes dissolved in the blood for oxygen from the air, and thus provides the basis for all other levels of respiration.

On the other hand, 'ventilation' refers to the movement of the thoracic cage and the diaphragm, which allows fresh air to enter the lungs on expansion and expels the stale breath on relaxation. Ventilation is normally controlled, both as to the rib-cage and as to the diaphragm, by the brain. If the brain stem is wholly destroyed, all possibility of spontaneous ventilation

ceases. On the other hand, respiration is independent of the brain, provided that ventilation is somehow maintained.

77. Quotation marks are used to remind us that we have not yet decided whether we are speaking of a true patient or merely the remains of one.

78. 315 ANNALS N.Y.A.S., *supra* note 19, at 27; Ingvar et al, *Survival After Severe Cerebral Anoxia with Destruction of the Cerebral Cortex: The Apallic Syndrome,* 315 ANNALS N.Y.A.S. 184, 208-09, and 203 (1978); Posner, *Coma and Other States of Consciousnes: The Differential Diagnosis of Brain Death,* 315 ANNALS N.Y.A.S. 215, 216 (1978). *Cf,* however, the striking exception reported by Parisi, Kim, Collins & Hilfinger, *Brain Death with Prolonged Somatic Survival,* 306 NEW ENG. J. MED. 14 (1982).

79. The "vital signs" that persist for a few days when suitable ventilation is provided differ profoundly from those residual functions that sometimes are found in what is undoubtedly a cadaver, such as the continued life of some tissues, shown by growing some cells from them in a culture-medium, or the firing of an individual neuron, or the persistent clarity and transplantability of the optical cornea. In these latter cases, there may be living beings present, but they are locally specified, isolated parts or portions of a disintegrated whole. Supposed growth of hair or nails is more likely the effect of dehydration and retraction of the flesh than growth from the follicles. The gasps and contractions of muscles on embalming usually are the results only of inanimate chemical and physical processes.

80. Yoshioka, Sugimoto, Uenishi et al, *Prolonged Hemodynamic Maintenance by the Combined Administration of Vasopressin and Epinephrine in Brain Death: A Clinical Study*, 18 NEUROSURGERY (1986).

81. Dillon et al, *Life Support and Maternal Brain Death During Pregnancy*, 248 JAMA (1982).

82. Shewmon, *Chronic "Brain Death": Meta-analysis and Conceptual Consequences*, 51 NEUROLOGY (1998). See also Shewmon, *"Brainstem Death," "Brain Death" and Death: A Critical Re-Evaluation of the Purported Equivalence*, 14 ISSUES IN LAW AND MEDICINE (1998).

83. The authors do not think this diagnosis can be securely made by any physician at present if only the brain has suffered damage, but they put the case at its strongest for the sake of argument.

84. *E.g.* Matakas, Cervos-Navarro & Schneider, *Experimental Brain Death, I*, 36 J OF NEUROLOGY, NEUROSURGERY, AND PSYCHIATRY 497 (1973) begins with the comment; "Brain death may be defined as the *survival of the organism* after the complete and permanent breakdown of the cerebral circulation" (emphasis added). Walker, Diamond & Mosely, *The Neuropathological Findings in Irreversible Coma*, 34 J. OF NEUROPATHOLOGY & EXPERIMENTAL NEUROLOGY 295, 322 ascribe the same definition to "many European authors", mentioning three authors other than Matakas *et al.*

85. The fact that no one save a physician (and not even the majority of them) can determine whether such a person is "brain-dead" or not manifests the difference. More strikingly, those

whose brains have been destroyed require aggressive nursing to prevent them from catching pneumonia or from developing bedsores (hazards to which corpses have not hitherto been subject). As phrased by Joann Lamb, *Recognizing the Donor*, AM. J. OF NURSING (Sept.1980), "Even after brain death has been ascertained, a donor's body must be cared for as if the person were alive...requiring aggressive nursing care...turning and positioning to prevent skin breakdown, chest physical therapy to prevent pneumonia, fluid maintenance and accurate recording of intake and output to assure renal function..." *Id.* at 1601.

86. Thus, Capron & Kass, *supra*, note 1, at 112 n.89 speak of patients "in whom respiration and circulation were artificially recreated" following "a period of anoxia long enough to destroy their brain functions". *See also* other quotations from them, *supra,* notes 16 and 18. THE PRES. COMM. REPORT, *supra* note 8, at 33-36 sets forth arguments that show clearly enough that there is no artificial substitute for a healthy brain and brain stem. We obviously agree that the person whose brain stem has been destroyed is in far worse condition than the comatose person with an intact brain stem with whom they compare him. He is mortally wounded and cannot be made to recover or even improve. The central point concerning which the Commissioners make but one passing allusion, is that the organism still functions as a whole, as a unit, albeit more loosely and slowly than before due to lack of one of its several integrating networks (the brain). The Commissioners' supposition (as that of Bernat, whom they cite at 36 n.4) is that the brain *and it alone* gives unity and life to the entire organism. They acknowledge that this is not a fact but a choice made on philosophical grounds, PRES. COMM. REPORT, *supra* note 8, at 35. Yet,

they go on to use it as if it were a well-established medical fact to beat down opposition to their proposal.

87. *Appraisal Summary*, *supra* note 22, at 982. *See also* WALKER *supra* note 22, 1st ed. at 4, 8.

88. This is not to say that anyone who would profit from the ICU is excluded from it because of "brain-dead" patients; all other types of patients have explicit priority over these latter. It is noteworthy that, though it is stated "these are not candidates for admission to the ICU unless a strong possibility exists that other of their organs...will be available for transplant," and "will not normally remain in the ICU for more than...24 hours," there is no hint given that these patients may already be corpses. "Patient Admission and Discharge Criteria, Intensive Care Unit, the George Washington University Medical Center: Type IV Patient". (August 1980). *See also,* Jonas, *supra* note 59, at 129.

89. By way of example only, *cf.* Korein, *Brain Death,* in ANESTHESIA AND NEUROSURGERY (Cottrell & Turndorf ed. 1980), at 283-85; Veith, *supra* note 21, at 1651,1653; Woolsey, *Death of the Brain,* 74 MO. MED. 540, 541-42 (1977).

90. Of course, this amazing surgery would be in vain if one had, in the meantime, excised the vital organs from the trunk and used them for one's research or for transplants. The PRES. COMM. REPORT, *supra* note 8, at 36, curiously scrambles the argument in the text here by pointing out that the *trunk,* when carefully maintained after surgical decapitation, would not have

the requisites for human life. But, if the head were still speaking, would they call the person dead?

91. Kent, *The Brain of Men and Machines, Part 1: Biological Models for Robotics* 3 BYTE 11, 98 (1978).

92. Jonas, *supra* note 59, at 130; *see supra* note 58.

93. 315 ANNALS N.Y.A.S., *supra* note 19, at 20.

94. This is particularly clear in the comments of the President's Commission on this position, PRES. COMM. REPORT, *supra* note 5, at 34-35.

95. The recent discovery that synaptic connections between neurons are effected by chemical transfer (diffusion of transmitter-substances through the fluid bathing the synapse) is of importance in this regard. Lithium or L-dopa circulating in the blood profoundly affects this sort of transfer. Such interconnection of both communication-systems strongly suggests that the loss of neither one, apart from the other, is death.

96. The President's Commission only muddies the water by speaking of the possibility of restoring in this way a "destroyed" hand, PRES. COMM. REPORT, *supra* note 8, at 76 n.59. In fact, it is only when the hand is not destroyed that it can he restored.

97. Jonas, *supra* note 59, at 139-40. One, then, who cuts away and destroys the body of a person whose brain he carefully keeps alive, whatever the gravity of this hideous crime, is not guilty of murder or homicide; hence, he should not, upon conviction, be sentenced to death but should himself be reduced to isolated-brain status.

98. Again, *dato non concesso.*

99. Byrne, *supra* note 13, at 1989-90.

100. Though intemperate in language and misleading through its failure to notice or to take seriously what was actually written, Veith & Tendler's, *In Response to an Opposing Viewpoint on Brain Death,* 243 J.A.M.A. 1808 (1980), does at least make clear that Tendler agrees with those who define death in terms of irreversible cessation of all brain function, whether destruction has taken place or not. *See also* Soloveichik-Tendler, *Jewish Law and Time of Death (Letters)*, 240 J. A.M.A., 109 (1978).

101. ENCYCLOPEDIA OF BIOETHICS vol.1 at 349-52 (Eastern Orthodox Christianity), vol 2 at 793-802 (Judaism), and vol.3 at 1364-66 (Protestantism) (Reich ed., 1978).

102. Since the principle deals with the relations between one man and another (or others) and since none can read another's heart, "innocence" and "guilt" are here to be taken objectively. Thus, a person may, according to most religious traditions, repel an unjustified attack on his own life even if this resistance unintentionally brings about the death of the attacker. But the attacker need not be culpable or subjectively guilty of sin or crime, and the one who resists may well have a heavily burdened conscience. For example, the attacker may be insane or ignorant of what he is doing or convinced that his action is morally good. Yet, even though one is obligated not to seek directly or intend his death but only his incapacity to carry through his assault successfully, one may resist him even at great risk of killing him.

103. On this point, Protestant theologians are much divided. The position indicated can claim at least as strong support as any other.

104. Orthodox Judaism should probably be seen as a major exception here, e.g., Bleich, *Ethico-Halakhic Considerations in the Practice of Medicine*, 7 DINE ISRAEL 87, 127-32 (1976) and Bleich, *Survey of Recent Halakhic Periodical Literature*, 16 TRADITION 121, 132 (1977) [hereinafter Bleich, TRADITION]. Though it can accept the principle as stated, it defines "dying" so strictly that the principle would seem inapplicable to anyone whose death could be deferred, even momentarily, by any available medical treatment. Because we are stewards only and not owners of ourselves, it is argued that we have no right to refuse any legitimate means known to be useful for preserving our own lives or others', no matter how painful, costly, or unavailing these measures may seem to us, so long as they do not put our lives in jeopardy.

105. See WALKER, CEREBRAL DEATH, *supra* note 22, at 139-66 (1st ed.) and 123-48 (2d ed.); Black, *supra* note 39 at 395; see also, N.I.N.C.D.S. STUDY *supra* note 30, at 182-92. *See supra* text accompanying notes 26-30. As pointed out in section I.2 of this Article, we object to the notion of context-free criteria, general or specific, and do not accept the reduction of the physician's art in making a determination of death to a mere verification of some prescribed list of indications, especially if statutorily specified. Indeed, only because of this reduction of the older *art* of determination of death to a putative *science* can its proponents make plausible to other physicians this wholly new approach to the subject.

106. N.I.N.C.D.S. STUDY, *supra* note 30 at 190-92; *Appraisal Summary, supra* note 22, at 985.

107. N.I.N.C.D.S. STUDY, *supra* note 30, at 190-91; 315 ANNALS N.Y.A.S. *supra* note 19, at 70-71; Loeb, *supra* note 44, at 190; Black, *supra* note 39, at 393, 395; Walker, Diamond & Mosely, *supra* note *79*, at 295-96, 320-21.

108. *See* WALKER *supra* note 22, at 84. That physicians do not understand the underlying process very well is indicated by the fact that they cannot predict, except on a statistical basis, when within the week following such testing of the "brain-dead" patient's brain he will suffer irreversible cardiovascular collapse and death.

109. N.I.N.C.D.S. STUDY, *supra* note 30, at 184-87.

110. PLUM & POSNER, *supra* note 34, at 226-28 (2nd ed.).

111. *Id.* at 226; Cantu, Ames, Dixon & DiGiacinto, *Reversibility of Experimental Cerebrovascular Obstruction Induced by Complete lschemia,* 31 *J Neurosurgery* 429 (1969).

112. *Appraisal Summary, supra* note 22, at 983-85; N.I.N.C.D.S. STUDY, *supra* note 30, at 77-147; 315 ANNALS N.Y.A.S., *supra* note 19, at 62-214.

113. 315 ANNALS N.Y.A.S., *supra* note 19, at 71,89-90, 143, 168 and 228; Black, *supra* note 39, at 393-95; WALKER, *supra* note 22, Chap. VI, esp. at 124-29 (1st ed.); Walker, Diamond & Moseley, *supra* note 79.

114. 315 ANNALS N.Y.A.S., *supra* note 19, at 242; N.I.N.C.D.S. Study, *supra* note 30, at 190-92.

115. Koran, *The Reliability of Clinical Methods, Data, and Judgments* 293 NEW ENG. J. MED., section I, 642, section II, 695; especially at 696-97, 700-01, (1975).

116. *Guidelines for the Determination of Death*, 246 J.A.M.A., 2184, at 2186; WALKER, *supra* note 22, at 140-43 (1st ed.), 125-27 (2d ed.); *Appraisal Summary*, *supra* note 22, at 983-84; PLUM & POSNER, *supra* note 34, at 315-16, 320-21; Woolsey, *supra* note 84, at 541; 315 ANNALS N.Y.A.S., *supra* note 19, at 143.

117. Walker & Molinari, *Sedative Drug Surveys in Coma: How Reliable Are They?*, 61 POSTGRADUATE MEDICINE 105, 107-08 (1977); Walker, *supra* note 22, at 65, WALKER, *supra* note 22, at 58 (2d ed.); 315 ANNALS N.Y.A.S., *supra* note 19, at 216-18.

118. N.I.N.C.D.S. STUDY, *supra* note 30, at 185-90; Walker & Molinari, *supra* note 112, at 109, 185 and 190.

119. Walker & Molinari *supra* note 112, at 106; WALKER, *supra* note 22, (1st ed.) at 65, 141, (2d ed.) at 59.

120. WALKER *supra* note 22, at 142 (1st ed.).

121. *Id.*

122. Since the criteria used in this part of the study were based solely on cessation of function, one may wonder how many of these people, at the time they were declared "brain-dead", would have been dead by a criterion of brain-destruction.

123. 315 ANNALS N.Y.A.S., *supra* note 19, *passim.* It was recognition of this situation that lay behind the Minnesota and similar criteria, which sought to avoid any prerequisites that are not directly determinable at the moment.

124. Koran, *supra* note 110; walker *supra* note 22, at 76; N.I.N.C.D.S. STUDY, *supra* note 30, at 190.

125. It is worth noting how many physicians are on record as opposed to determination of death on the sole basis of any presently used set of brain-related criteria, even though a number of them have no problem with defining death in terms of total destruction of the brain. *Cf.* Fost, *Research on the Brain Dead,* 96 J. PEDIATRICS 54, 54-56 d1980); Evans and Lum, *supra* note 35; *See* Bernat, Culver & Gert *Defining Death in Theory and Practice,* THE HASTINGS CENTER REPORT, (Feb.1961); Valaske, *supra* note 22; Freeman & Rogers *On Death, Dying, and - Decisions,* 66 PEDIATRICS 637, (1980); Poole, *supra* note 35; Paul, *supra* note 35; Toole, *supra* note 38. Perhaps most impressive are the reservations expressed in the final version of the N.I.N.C.D.S. STUDY, *supra* note 30, at 182-92. This does not reject the notion of "brain-death" or the possibility of diagnosing it, yet makes quite clear that much more work needs to be done before all appropriate questions about the diagnosis and its basis are answered. Likewise, Dr. Alister Browne, a philosopher, "argue[s] that not only is the whole-brain death definition inadequate, there is neither any necessity for, nor advantage in, any other way either." Brown, *Whole Brain Death Reconsidered,* 9 J. OF MEDICAL ETHICS 28-31 (1983).

126. Private Communication.

127. *See supra,* section III.1.a.

128. *Cf. supra* note 64 and note 79.

129. Oral testimony before the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research (July 11, 1980).

130. The two chief qualifications would be that; a) the patient's death (in the ordinary sense) after the ventilator has been turned off be determined by the most exacting means available if there is question of vital-organ removal, and b) the patient has given express permission for whatever use is to be made of his remains. Ramsey's approach would be easier to justify than Tendler's, since it would involve less risk of directly willing the patient's death and less likelihood of insufficient effort to wean him from the ventilator before turning it off.

131. Kevin D. O'Rourke, O.P., Presentation before the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research (July 11, 1980).

132. Data for the year 1977 from: OVERSEAS DEVELOPMENT COUNCIL, THE UNITED STATES AND WORLD DEVELOPMENT; AGENDA 1979, 256 (1979), based originally on U.S. Department of Commerce, 58 SURVEY OF CURRENT BUSINESS 37 (July 1978). See also Alexander, *supra* note 1, at 45-46. For a physician's indignation at what he sees as a campaign to dehumanize medicine along these lines, *cf.* Leibel, *Thanatology and Medical Economics*, 296 NEW ENG. J. MED., 511 (1977).

133. How far this evil may go can be seen if one recalls that those who, during the '20's, prepared the policies and practical carrying out of the extermination of the "socially undesirable," which the Nazis later took over for their own purposes, were leaders in the German medical profession. Apparently, the first major breakdown of medical traditions was made by

Binding & Hoche, professors of law and medicine respectively, in their work DER FREIGARE DER VERNICHTUNG LUENSUNWERTEN LERENG (1920). (An excessively literal English translation exists along with comments: R. Sassone, THE RELEASE OF THE DESTRUCTION OF LIFE DEVOID OF VALUE (1975)). In the J. A.M.A., under the regular heading, *Foreign Letters: Our Regular Correspondent from Berlin,* we find, to give a few examples only: *The Right of Putting Incurable Patients Out of the Way,* 75 J. A.M.A. 1283 (1920); *Hereditary Transmission and Natural Selection,* 76 J. A.M.A. 1415 (1921); *The Decadence of Civilized Nations in Light of Biologic Research,* 77 J. A.M.A. 1034 (1921); *Protection to Posterity in Relation to Social Politics,* 78 J. A.M.A. 448 (1922); and *Meeting of the Prussian Council on Health* 99 J. A.M.A. 666 (1932). Many of these physicians became the Nazis' willing, even eager accomplices, *see* Alexander, *supra* note 1; WERTHAM, *supra* note 82; and Block, *The Berlin Correspondence in the J.A.M.A. during the Hitler Regime,* BULL. HISTORY OF MED. 297 (May-June 1973).

134. See *supra* text accompanying note 23.

135. Jonas, *supra* note 59, at 139-40; Alexander, *supra* note 1, at 44; 315 ANNALS N.Y.A.S., at 323-24.

136. At present, heart, liver, endocrine glands and tissues, skin, lung, bone, and bone- marrow transplants are being made or attempted; *cf.* Russell & Cosimi, *Transplantation,* 301 NEW ENG. J. OF MED. 470 (1979). Not exactly a form of transplantation, viable sperm is being extracted from cadavers in the hope, as yet unrealized, of using it to obtain pregnancies; *cf.* Rottiman,

supra note 59, at 512. Interesting is the remark that, "there appeared to be four options available to obtain viable sperm from a man with brain death--three antemortem and one postmortem." Obviously, Dr. Rothman does not regard "brain death" as equivalent to "death".

137. D. Bleich, Presentation before the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research (July 11, 1980). *Cf.* Bleich, TRADITION, *supra* note 99 at 139.

138. PRES. COMM. REPORT *supra* note 8, at 43.

139. *Id.* at 80-81, 115-16.

140. *Id.* at 81, n.69.

141. *Id.* at 35-36.

142. *E.g.*, *supra* notes 63, 65, 66, and 81.

143. *Cf. Wisd.* 1:16-2:9, 2:21-24; 3:1-9; 4:10-5:23; *Rev.* 6:9-11, (which has given rise to a particularly controversial literature through the centuries); *Luke* 16:22-31, 20:34-40 *and Acts* 23:8. As to the "souls under the altar", note also the statement of Pope John XXII in Denzinger & Schonmetzer, ENCHIRIDION SYMBOLORUM DEFINITIONUM ET DECLARATIONUM DE REBUS FIDEI ET MORUM (marg. nos.) 990-91 (33d ed. 1965) [hereinafter referred to as DS] and also the *de fide* definition by Pope Benedict XII, *Benedictus Deus*, DS *supra* at 1000-02.

144. DS, *supra* note 138, at marg. no. 902.

145. The Council (as, also, V Lateran—cf. infra note 143) does not discuss whether this concrete materiality is already animated by lower-than-human forms or is, as Thomists held,

"prime matter", i.e., pure potentiality devoid of any formal aspects whatever save what is given it by union with the intellectual soul. The point at issue for the council was the substantial unity of the human person, not the dispute between Augustinians and Thomists as to whether the intellectual soul is the *unique* form of the body or merely the highest of a hierarchy of forms, all simultaneously present. It remains permissible, as far as these councils are concerned, to argue that the intellectual soul has disappeared with the irreversible cessation of all brain functions and that the single organism that remains is of animal or vegetal nature, though still human in appearance. A Thomist theory of successive deanimation or a Scotist theory of successive loss of higher forms would stand uncondemned by either council. *Cf.* Lecler, VIENNE, 107-13 (1964).

146. Strictly, this identification, though obtainable verbally from the definition just mentioned in conjunction with that found at marginal number 900, is better rounded at the level of definition when it is conjoined with the assertion of the Church's positive teaching given by V Lateran, the eighteenth Ecumenical Council. DS, *supra* note 138, at marg. no. 1440. A witness to the earlier tradition in the same sense, but before the rise of Scholasticism, is found in the teaching of the eighth Ecumenical Council, IV Constantinople, condemning the teaching that man has two souls, DS, *supra* note 138, at marg. no 675-78; *cf.* marg. no. 2828.

147. Poulain, THE GRACES OF INTERIOR PRAYER, 166-67, 194-95 (Yorkes-Smith trans. 6th ed. 1910).

148. SOCIAL CONCERNS COMMNITTEE OF THE COMMISSION ON THEOLOGY AND CHURCH RELATIONS, THE LUTHERAN CHURCH--MISSOURI SYNOD, REPORT ON EUTHANASIA WITH GUIDING PRINCIPLES 29, #8 (1979).

149. *Id*. at 21-22.

150. The fact that some theologians would dispute this assessment of the effects of baptism is, until some official recognition is given their doctrine or some tolerance of it shown in practice, insufficient rounds for regarding the matter as subject to practical doubt in the eyes of the Church.

151. This is the point that seems to have carried almost all the weight in the minds of the President's Commission.

152. See *supra* section II.2.

153. PRES. COMM. REPORT, *supra* note 8, at 5-7, 31, 33 and 41.

154. *Id*. at 33.

155. *Id*.

156. *Id*.

157. *Id*. at 41 and 37.

158. *Supra* section III.1.a; Capron & Kass, *supra* note 1, at 104-06. The President's Commission (PRES. COMM. REPORT, *supra* note 8, at 83-84) confuses the issue again, tying the ethics of cessation of treatment solely to the question of the patient's death. Also, Jonas, *supra* note 59, at 139-40; Hughes, *Criminal Omissions*, 67 YALE L.J. 590 (1958).

159. Admittedly, the morality of "letting someone die" needs much closer scrutiny than it has yet received from ethicists and theologians, especially in cases where one person makes the decision for another who is incompetent.

160. An example of an effort in this direction is found in legislation debated in the Missouri House early in 1979, following three years of unsuccessful attempts to "define" death. Rather than attempting to define death, the proposal stated that physicians and persons acting under their orders shall not be required "to initiate or maintain extraordinary or heroic life-support measures for a person who is determined to have sustained total and irreversible cessation of all brain function" 1979 Mo. Laws HCS & HB 438. Though not well phrased, the general thrust of this substitute bill is clear. Its language does not purport to declare such a person dead, but rather recognizes that the person may be dying and exempts physicians from liability for choosing not to intervene in that process. It seems important to us to add to such legislation a statement providing that a physician acting in these circumstances does so in accordance with generally accepted standards of medical practice, so that he is required to consult with the family of the dying person.

It should be noted that in 1982, Missouri enacted a version of the Uniform Determination of Death Act, *supra* note 1. See MO. ANN. STAT. § 194.005 (Vermon 1982).

161. Veith, *supra* note 21, at 1746.

162. PRES. COMM. REPORT, *supra* note 8, at 135-46.

163. Legislation of this general nature has recently been enacted in Wisconsin, requiring the initiating party and attorney of any litigation found to be "frivolous" to pay all court costs and reasonable attorney fees. Under the Wisconsin statute, a finding of "frivolous" can be made if 1) the action was brought "in bad faith, solely for purposes of harassing or maliciously injuring another" or 2) the party or party's attorney "knew, or should have known, that the action...was without any reasonable basis in law or equity and could not be supported by a good faith argument for an extension, modification or reversal of existing law." WIS. STAT. ANN. § 814.025 (West 1977).

See also Tatum v. Regents of Nebraska-Lincoln, 103 S. Ct. 3084 (1983), in which the Court invoked Sup. Ct R. 49.2 to award $500 damages to respondents from petitioner for filing a "frivolous" petition for certiorari. In Christenburg Garment Co. v. E.E.O.C., 434 US. 412 (1978), the Court stated that the plaintiff, in bringing an action under Title VII of the Civil Rights Act of 1964, could have been liable to pay defendant's attorneys fees if the action was shown to have been frivolous, unreasonable and without foundation (upheld in Hughes v. Rowe, et al, 449 U.S. 5 (1980)).

164. Legal handling of the problem of cessation of treatment is, by the nature of the case, far more flexible and better suited to taking account of differences of religious belief than is a legal definition of death, which seems necessarily exceptionless, *cf. supra* section III.2.g.

165. *See supra* section II.2.

166. *Refinements, supra* note 22, at 52.

167. "[T]he patient exchanges one terminal disease for a myriad of other disease processes" is the summation offered by Hastillo, Hess & Lower, *Cardiac Transplantation: Expectations and Limitations*, 50 MODERN CONCEPTS OF CARDIOVASCULAR DISEASE 13, 18 (1981). This entire article is helpful in gaining perspective on transplantation from the patient's point of view.

168. *Cf.* Byrne, *supra* note 13, at 1988-90 for details. *Compare* text accompanying note 70.

169. PRES. COMM. REPORT, *supra* note 8, at 75.

170. *Id.* at 76.

171. *Id*. at 82.

172. *Id*. at 76.

173. There are other such systems, also, e.g., the living skeleton, the digestive system, the skin; we have no objection if one wishes to add these to our list. But the state of their own intrinsic unity is far harder to ascertain than that of the other three and, hence, far less useful for diagnostic purposes. Destruction of one or the other of the three basic systems gravely weakens the unity of the whole body, so that despite all medical efforts, before long the other systems will also disintegrate. Yet until all three systems are structurally incapable of further unitary activity, one cannot rightly consider the over-all unity of the body to have disappeared.

174. See *supra* note 74.

175. Among these indices, though never standing by itself, will be cessation of function; *cf. supra* section II.1.

176. See *supra* section III.2.e.

177. The UDDA stands here for all "alternative-criteria" statutes.

178. PRES. COMM. REPORT, *supra* note 8, at 76. This may not raise any great practical difficulties at present; yet, it is not hard to think of situations involving insurance, inheritance, or crime where the few minutes difference could be crucial.

179. There are only these three different "deaths" if "irreversible cessation of function" is taken as equivalent to "destruction", which the proponents of this statute consciously refuse to do. If one accepts their arguments at face value, then someone is "dead" who has an irreversible cessation of function without any appreciable destruction of the underlying organ-systems (despite the possibility that a condition exactly similar to his might be made reversible in the future) and some are differently "dead" whose irreversible situation has been produced by massive destruction of those systems. The result of such equivocity, then, could be six varieties of "death".

180. This is part of the rationale for the wording of our proposed statute. See part 2.a above.

181. PRES. COMM. REPORT, *supra* note 8, at 60.

182. Capron & Kass, *supra* note 1, at 109.

183. PRES. COMM. REPORT, *supra* note 5, at 63.

184. *Id*. at 7, 73 & 112.

185. Though strongly in favor of determination-of-death statutes in principle, Bernat, Culver & Gert, *supra* note 120, at 5, sharply criticize the model statute proposed by the President's

Commission. They sum up their arguments against the UDDA with: "The Commission has thus created a statutory definition of death that is seriously misleading and that contains the most serious flaw that the Commission finds in previous statutes: it provides two independent standards of death, without explaining the relationship between them." *Id*. at 8.

186. See Bernat, Culver & Gert, *The Authors Reply,* THE HASTINGS CENTER REPORT, 44 (Apr. 1982).

187. *See supra* section I.3.b.

188. 40 Fed. Reg. 33534 (1975).

189. This is the approach taken by Capron and Kass in their model statute: the presence of ventilators, tubes, bottles of chemicals, etc., would necessarily so disguise the collapse of circulatory, respiratory, and other vital systems that no mode of diagnosis would be possible other than one based on the condition of the brain. The situation so envisaged is unreal. If respiration, as distinguished from the movements of the diaphragm and ribcage, ceases and cardiovascular collapse occurs, with the almost concomitant shut-down and disintegration of the other organ-systems, this cannot be disguised by the presence of ventilatory support, (*cf.* details in section 11.2.) The person who shortly before appeared alive though profoundly unconscious, now appears dead. It is this situation that is still termed death simply, even in the literature of the proponents of "brain-death".

Of course, it may be argued that it is the observation of spontaneity of function that is precluded. But, on the one hand, if by 'spontaneous respiratory functions' one is referring to the

vital functions of the lungs and tissues in gas-exchange, then the argument is wrong. For if functioning at all, the lungs function spontaneously; their functioning does not depend on the brain save indirectly *via* ventilation. And once the lungs cease their spontaneous exchanging of gases, the entire circulatory system and all the rest of the body would show obvious signs of the shut-down, whether the ribcage is being moved or not. A parallel argument applies to the spontaneous functioning of the heart.

On the other hand, if one refers only to the spontaneity of the ribcage movement and that of the diaphragm, then the loss of *this* spontaneous activity has little to do with death, as is evident from the cases of those who, like Fred Snite, have for long years worked and played and even begotten children without any spontaneous power to breathe. Nor may the people with pacemakers or those with artificial hearts be considered dead, even if they should also require an iron-lung.

190. PRES. COMM. REPORT, *supra* note 8, at 32-37, 83.

191. Bernat, *supra* note 70, at 389-94; Law Reform Commission of Canada, CRITERIA FOR THE DETERMINAIION OF DEATH, Report 15, 29-32 (March 1981).

192. PRES. COMM. REPORT, *supra* note 8, at 57-59; *see also* Report 15, *supra* note 187. Logically, of course, there might be no difference at all in the range of application but only a greater ease or efficiency in making the application. No one, however, has claimed either of these except with reference to freshness of organs. Rather, one gathers that most advocates of "brain-death" statutes want a difference of range to exist. They want some people on ventliators

to be declared dead even though, if the whole brain is dead, by any criteria the person will be dead within a few days at most.

193. Obviously there is a subjectively based answer to the question: to make less difficult the decision to stop all treatment. Concerning this see section III.2.e *supra*. In any case, this represents a purpose for which the statute is to be used, a purpose that should not be allowed to affect the law's answer to the question, "When, in fact, is someone dead?"

194. For the importance of this fact, *see* Capron & Kass, *supra* note 1, at 1O6-08; *Refinements, supra* note 48, at 51-52.

195. *See supra* section II.

196. *Cf. infra* section IV.3.f.

197. Molinari, *Brain Death, Irreversible Coma and Words Doctors Use*, 32 NEUROLOGY 400 (1982).

198. PRES. COMM. REPORT, *supra* note 8, at 81.

199. *Id.* at 41.

200. *Id.* at 60.

201. 100 A.B.A. ANN. RPT. 231-32 (1975). *Compare* PRES. COMM. REPORT, *supra* note 8, at 114 & 126, (Idaho and Illinois).

202. PRES. COMM. REPORT, *supra* note 8, at 121 & 124, (Alaska, Arkansas & Hawaii).

203. UDDA, *supra* note 9.

204. UBDA, *supra* note 1.

205. PRES. COMM. REPORT, *supra* note 8, at 78 and 114.

206. *Id*. at 114.

207. *Id*. at 78.

208. DeMere, *House of Delegates Redefines Death, Urges Redefinition of Rape, and Undoes the Houston Amendment*, 61 A.B.A. J. 463 (1975).

209. *Hearings Before the Mo. S. Select Comm. on the Definition of Death*, (1976) (statement of Dr. McCarthy DeMere).

210. Note the contrast with requirement 7 for a satisfactory brain-related statute as given in *Refinements, supra* note 48, at 49.

211. PRES. COMM. REPORT, *supra* note 8, at 77.

212. See *supra* note 100.

213. PRES. COMM. REPORT, *supra* note 8, at 49.

214. Consider again the recent controversy in England over the British criteria (*supra* notes 34 & 35) through which it became clear that no adequate testing of the criteria had ever been done, retrospectively or prospectively--indeed, that there was great resistance to having such testing carried out even to settle the controversy. In the course of this controversy, those defending the British criteria gave no indication that the criteria justified anything more than a prognosis that the patient would shortly die ("after some days" according to LEGG & PRIOR, 1 LANCET 107 (1981); 2 LANCET 107 (1980). To this day, no evidence has been offered to show that the

British criteria are valid for a diagnosis of actual death. The many other sets of criteria based, like the British, on the Minnesota criteria suffer the same defect.

215. PRES. COMM. REPORT, *supra* note 8, at 79.

216. *Id*. at 78-79.

217. See *supra* text accompanying notes 63 and 65.

218. PRES. COMM. REPORT, *supra* note 8, at 5-6, 34-35, 112.

219. *Guidelines for the Determination of Death*, 246 J. A.M.A. 2184-86 (1981) [hereinafter *Guidelines*].

220. PRES. COMM. REPORT, *supra* note 8, at 159-66.

221. *Id*. at 27-28.

222. See *supra* section 1.3.c. What is truly surprising is that the President's Commission knows of the merely prognostic nature of the British and Minnesota criteria and also of their relation to each other, as well as of the American insistence on the need for more than clinical observation if a diagnosis is to he made; see PRES. COMM. REPORT, *supra* note 8, at 27-28 & n. 18.

223. PRES. COMM. REPORT, *supra* note 8, at 159.

224. *Id*. at 162; *Guidelines*, *supra* note 215, at 2185.

225. See section I.e. *supra*. The authority of so imposing a list of signatories will cease to overawe one who notices the breathtaking contradiction in their two assertions: *Irreversibility* is Recognized When Evaluation Discloses Findings of a *And* b *And* C: a The Cause of Coma is Established..." and "b) ...In the unusual circumstances where a sufficient cause cannot he

established, irreversibility can he reliably inferred only after extensive...testing." PRES. COMM. REPORT, *supra* note 8, at 163-64

226. PRES. COMM. REPORT, *supra* note 8, at 163 or *Guidelines*, *supra* note 215, at 2185.

227. Toole, *supra* note 38, at 602-03.

228. *Id*. at 603; Capron & Kass, *supra* note 1, at 106.

229. PRES. COMM. REPORT, *supra* note 8, at 78.

230. See *supra* section 1.3.1. *passim*; *See also*, Black, *supra* note 39. Note, too, the implications for this question, of the equivocity of definition discussed in section IV.3.a. *supra*; *Cf.* Molinari, *supra* note 193, at 401.

231. PRES. COMM. REPORT, *supra* note 8, at 84.

232. Evans & Lum, *supra* note 73; Byrne, *supra* note 13, at 1987-1989, and section I.3 above.

233. *Id.*

234. See section III.1.b. & subsection d.

235. Byrne, *supra* note 13, at 1988.

236. See section II.2 & 3 *supra*.

237. PRES. COMM. REPORT, *supra* note 8, at 35.

238. Van Till, *supra* note 2, at 814.

239. Kamisar, *Some Non-Religious Views Against Proposed Mercy Killing Legislation*, 42 MINN. L. REV. 969, 976 (1958).

240. Roe v. Wade, 410 U.S. 113, 159 (1973).

241. So, at least, the New Jersey Supreme Court seemed to think in deciding the Quinlan case: In re Quinlan, 70 N.J. 10, 355 A.2d 647, 663-64 (1976). *See* Beresford, *Cognitive Death: Differential Problems and Legal Overtones*, 315 ANNALS N.Y.A.S., *supra* note 19, at 340.

242. See HANDBOOK OF NATIONAL CONFERENCE OF COMMISSIONERS ON UNIFORM STATE LAWS 182 (1968); UNIF. ANATOMICAL GIFT ACT 8 U.L.A. 16-17 Commissioners' Prefatory Note (1968).

243. A brief but good discussion of the conflict of interest generated by altruism is given in Black, *supra* note 39, at 397.

244 Burns & Hamlon, *infra* note 241, at 276-77.

245. Burns & Hamlon, *Minnesota "Brain Death" Legislation: A Step Forward...Or Backward?*, 62 MINN. MED. 273, 275 (1979). *See also*, *Refinements*, *supra* note 60, at 50; Woolsey, *supra* note 84 at 541; Mo. S. Comm., *supra* note 156: and 315 ANNALS N.Y.A.S. *supra* note 19, at 316 (concerning a physician's lack of freedom in this matter) & 374. By way of fulfillment of prophecy, see PRES COMM. REPORT *supra* note 8, at 80-81.

246. Woolsey, *supra* note 84, at 541. The aggressive federal activity in support of the Health Systems Agencies Act (1974), which in the name of economy in health care is riding roughshod over parental, religious, and private rights of all sorts, clearly shows the direction to be expected.

247. Black, *supra* note 39, at 399; Veatch, 315 ANNALS N.Y.A.S., *supra* note 19, at 316.

248. Comment, *The Right to Die a Natural Death and the Living Will*, 13 TEX. TECH. L.R. 99 (1982); Russell, FREEDOM TO DIE; MORAL AND LEGAL ASPECTS OF EUTHANASIA,

382-83 (1977); Kutner, *The Living Will: Coping with the Historical Event of Death*, 27 BAYLOR L.R. 39 (1975).

249. See also 315 ANNALS N.Y.A.S., *supra* note 19, at 356-57, for a further response.

250. *See supra* section IV.3.c & end of subsection a.