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The Big Lie in Human Embryology: The Case of the Preembryo

by

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Since *Roe v. Wade*, adjudicated in 1973, the public interest in human embryology has markedly increased. Unfortunately, those supplying the "information" about the subject have been political analysts, newswriters, bioethicists and theologians, few of whom have bothered to consult human embryologists for accurate information. As a consequence, more misinformation, misrepresentations, and outright lies about human embryology have found their way into the public discourse, than ever before in our history.

In addition, an amphibian embryologist introduced a new term, "preembryo", for the early human embryo, and applied a reduced status for this so-called period. It has subsequently been seized upon and used for the justification for discarding human embryos in abortion procedures, their use in fetal tissue research¹ and human embryo research. This reduced status has come to mean a *reduced moral status*.² This arbitrary period of human development, "preembryo", was conceived and has been promoted without the sanction or sponsorship of a single human embryologist.

Grobstein Introduces the Term "Preembryo"

Clifford Grobstein authored an article entitled: "External Human Fertilization", published in *Scientific American* in 1979.³ He introduced the equivalent terms "preembryonic" and "preembryo" in this article. The theme of this article was designed to answer public policy questions raised by then Secretary of Health, Education and Welfare, Joseph A. Califano, Jr. Policy questions had been raised because of the external fertilization techniques performed in 1969 by R.G. Edwards, B.D. Bavister, and P.C. Steptoe, and which resulted in the birth of Louise Joy Brown in England.

In addition to his introducing the above terms in this article, he also used a third equivalent term, the "preimplantation embryo." This is significant because during the hearings in 1994 by the Human Embryo Research Panel, assembled by NIH Director Harold Varmus, the panel chose not to use the term "preembryo" because of the strong objections to its use (not by the panel members, but by witnesses and correspondents). Instead, they used the equivalent term *preimplantation embryo*.⁴ It is doubtful that anyone objecting to the term preembryo knew that Grobstein had used the equivalent term preimplantation embryo.

Grobstein claims in his article that external fertilization "as reported by Steptoe and Edwards, is based on a confluence of 'new understandings'." He then equates the "new understandings" with "new knowledge"! It is important to keep in mind this "new knowledge" is brought about by deliberate technical manipulations of the early embryo, but which revealed no new or different principles of development, which would alter the character or destiny of the continuum of development. In other words, Louise Brown developed as one would normally predict. She was human, an individual, and a person in every respect.

Grobstein then invokes the philosophical concept of "person" and asks at what stage in human development this occurs "in the ethical and legal sense." He admits the fertilized oocyte is *human* and an *individual*, which years later he rejects. But then, he makes an extraordinary claim:

A particular stage such as the entry of the sperm head or the fusion of pronuclei might be thought of as the critical moment of emergent individuality, *but neither of them is a step that is essential to subsequent development*: in various animal eggs other kinds of activation of the egg cortex are sufficient to initiate development without a paternal contribution (parthenogenesis), and even when paternal chromosomes are present, they have been shown to have no effect until well beyond fertilization.

Grobstein has cited two abnormal circumstances, which do not lead to a normal, sustained continuum. What he has ignored is that under *normal* circumstances, *all* the known events of normal fertilization are essential and *needed* for subsequent development. He claims that parthenogenesis and formation of a hydatiform mole (only paternal chromosomes present in the fertilized egg) prove scientifically that a "person" does not exist at fertilization. This is disingenuous and misleading because he cites the *faults* in embryology and not the *normal* sequence of events.

He then questions when the "individual" or "person" occurs and cites the examples of monozygotic twinning (MZ) and anencephaly. Years later, he decides the two terms are the same and substitutes "individual" for "person".⁵ In the case of monozygotic twinning, he says "it is possible for two individuals to be produced from one fertilized egg", and in the case of anencephaly, for "no true person to be produced at all".

What Grobstein meant, and affirmed in later writings, was that the early developing embryo was not an individual until at least 14 days post-fertilization, because he declared the embryo could be split and form multiple individuals up to that time. He also claimed that after 14 days post-fertilization, the embryo could not duplicate, that twinning was not possible.

Again, he is disingenuous and misleading because, retrospectively, we know from observations of the placentae that 35% of all monozygotic twins result from separation of blastomeres (embryonic cells) at the first or second cleavage (multiplication) stage.⁶ Therefore, a case could be made that the *individual* is determined early. It could be equally postulated that all of those embryos which *do not* divide at all could also be determined early. Experiments on lesser species indicate that the blastomeres of the cleavage stages are

totipotent and if separated, can give rise to a complete individual. We assume this is the case in humans without the experimental evidence. Even if it may be true, we do not know what triggers the separation. In the case of MZ, splitting occurs in only about one in every 270 births. That leaves 269 of every 270 births which do not split. What is it that governs the splitting? We simply do not know.

It does not seem to follow the statistical pathways which account for dizygotic twinning (twins from two different fertilized eggs). Most articles claiming a statistical basis have been dependent on interviews *after* the fact.^{7 8} Actually, one can postulate some kind of activator for blastomere separation, or an inhibitor to an activator, which later is removed (by what mechanism?), or simply an inhibitor alone, which for some reason(s) does not appear in every embryo, nor would appear at the same time in every embryo. The truth is we do not know the mechanism. Therefore, we cannot say when the potential for separation actually occurs or actually is ended.

Also, monozygotic twinning *does* occur after 14 days, but the process will be complete only to the extent or degree of fate of the embryonic cells (differentiation). This is the time when conjoined twins (Siamese twins) and *fetus-in-fetu* (parasitic) twins occur.

In the case of anencephaly (failure of brain development), Grobstein again invokes an abnormal circumstance and wants to apply it to normal circumstances.

Grobstein relies on "external signs" for distinguishing embryos from "preembryos". He admits to "continuously intergrading phases" (the continuum), but nevertheless wants to separate them, so he can claim a "true person" is not present at any given time. He claims that the external signs are those recognized as human by "other persons". Since one of the main characteristics of the transition from the 8 week embryo to the 9th week fetus is more rapid development of the face (so that it looks human) his changes from "preembryos", which he also calls "prepersons", to the fetus would take place at approximately 9 weeks post-fertilization.

Grobstein also invokes *sentience*, "internal conscious awareness", which he claims does not occur "at least until 8 weeks." This is so arbitrary as to defy imagination. Sentience is not a biological, nor an embryological, term or concept. It is born out of psychology. From this unscientific claim have come multitudes of

statements wholly unfounded. These include claims of electroencephalograms performed on 8 week embryos! In a later publication, Grobstein claims there is willful (sentient) movement of the human embryo at 7 weeks.⁹ Such a claim has never been substantiated and, most probably, could never be proved!

Grobstein then states that "since the criteria for personhood have not yet appeared (prior to 8 weeks) existing persons have not been manipulated and the rights of persons are not being violated." This is a neat technique, to erect a phantom stage, that of a person, then to draw conclusions about it.

Thus, it has been necessary to critique this landmark article by Grobstein because since 1979, lay literature and some scientific journals have continuously used the term "preembryo" and its equivalent terms, and have applied a reduced moral status to the preembryo in order to justify socio-legal procedures on the early human embryo. Grobstein claims that his definition of preembryo is scientifically based. He is wrong. He has also applied a philosophical term, "personhood" to apparent embryological terms and attempted to make it seem credible.

The Warnock Commission and the American Fertility Society

The term "preembryo" was later supported by the Warnock Commission of England in 1984, and in its committee report stated: "The human embryo...is not under the present law of The United Kingdom accorded *the same status* as a living child or adult, nor do we necessarily wish it to be accorded the same status...The embryo of the human species ought to have a *special status*."¹⁰ That turned out to be a *reduced moral status* in order to allow manipulation and experimentation.

As would be expected, the Ethics Committee of The American Fertility Society (AFS), of which Grobstein was a member, amplified the term "preembryo" and on the basis of that "existence", justified experimentation on it. What they wrote in their supplement¹¹ was right out of Grobstein's handbook on public policy and experimentation of the early human embryo.

The Several Individualities

Grobstein decided the fertilized human oocyte was not an individual because he later conceived of six (6) different individualities: Genetic, Developmental, Functional, Behavioral, Psychic, and Social, in that order. The overall purpose for these assignments was political. Here are the words of the AFS Ethics Committee: "How should these *facts* (citing the individualities) based on studies of species with similar, but not identical, developmental history to that of the human species, be related to the *status* (sic) of the human embryo?" Thus, in order to assign a *reduced moral status* to the early embryo the committee relied on pseudoscience in the form of "individualities."

Grobstein is in shallow waters. For example, he defines Functional Individuality as involving development of the heart. He makes a point of describing its beat "during the fourth week post-fertilization" and marks it as the defining time for Functional Individuality. But, lost in his assignment of the onset of Functional Individuality is the concept of the *continuum*.

What about the embryo just prior to a detectable heartbeat? What about the first contraction of heart muscle cells (or of the first cell?) What about the establishment of the early organ field? Or of events which lead to its formation? Are they of no consequence? In other words, Grobstein has been completely arbitrary. A similar rationale can be applied to each of his other "individualities".

Contemporary Human Embryologists

It is significant to ask if contemporary human embryologists use the terms "preembryo" or "preembryonic" in their textbooks. Such authors as Carlson¹², Sadler¹³, Patten¹⁴, and Larsen¹⁵ do not use the term "preembryo". O'Rahilly¹⁶ not only does not use the term, but includes a footnote on page 55 of the first edition of his text in which he states the following:

The ill-defined and inaccurate term *preembryo*, which includes the embryonic disc, is said either to end with the appearance of the primitive streak or (in the *Nomina Embryologica*) to include neurulation. The term is not used in this book.

Neither does he use it in his second edition, and lists four reasons why¹⁷: 1) it is ill-defined, 2) it is inaccurate, 3) it is unjustified, and 4) it is equivocal.

The equivalent term, "preembryonic", is used in the current *Nomina Embryologica*. In discussions with several nomenclature committee members this author has been unable to learn how the term came to be included in the *Nomina*.

Do we have a clue as to why? On page ix of the 6th edition of *Nomina Anatomica* (3rd edition of *Nomina Embryologica*) it is stated for the 1985 Twelfth International Congress of Anatomists in London:

Discussions at this *and thereafter* (my emphasis) led to the present...Third Editions of *Nomina Histologica* and *Nomina Embryologica*.¹⁸

In addition, Keith Moore had never referred to the term "preembryo" in any of his texts until he introduced it in his 5th edition of *The Developing Human*. He is the first, and only human embryologist to do so, so far. In this edition, he uses the term in a contradictory way. I wrote to Dr. Moore in 1993 and protested his use of this term. In his reply to me he stated that he would remove the term in the next printing.¹⁹ In his third printing of the 5th edition, he has, indeed, removed from the index and text the term "preembryo". However, he has not removed the equivalent term "preembryonic".

Conclusion

In summary, the equivalent terms *preembryo*, *preembryonic*, and *preimplantation embryo* have come into the lexicon of human embryology with increasing frequency since first introduced by an amphibian embryologist, Clifford Grobstein, in 1979. All of these terms mean a *reduced moral status* and have no credible scientific justification. They are wholly arbitrary.

The "different status" has been used and has been proposed, to allow manipulation and experimentation up to 14 days post-fertilization, as recommended by the NIH Human Embryo Research Panel, or as late as 7 weeks post-fertilization (Grobstein's

recommendation and new assignment for the onset of the fetal stage.)

In order to apply the concepts "individualities" and a reduced moral status a nullification of the continuum of human development must occur.

Where have we seen this Aryan mentality before? A "different status" was arbitrarily assigned to the "*Untermenschen*" in Nazi Germany in the 1930s. Thus, experimentation, including medical, was deemed allowable and justified on the disabled, genetically and mentally impaired, Poles, Russians, Gypsies, Slavs, Jews, Priests, Pastors and even German Citizens.

It is my belief that human embryologists do not wish to be a part of this "reduced status" policy. It is my further belief that human embryologists have an obligation to keep the science of Human Embryology straight and consistent. It is time to speak out.

The so-called "preembryo" is a false stage (period) of human development invented by an amphibian embryologist for political reasons only. It has no credible scientific justification. Thus, the inclusion of this term into the language of human embryology has become a hoax of gigantic proportion. Adolph Hitler said, "The great masses of people...will more easily fall victims to a big lie than to a small one."²⁰

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