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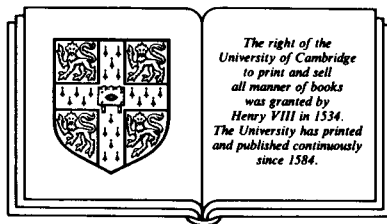
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# *When did I begin?*

Conception of the human individual in history,  
philosophy and science

**NORMAN M. FORD, S.D.B.**

*President of the Melbourne College of Divinity, Melbourne, Australia*



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## FOREWORD

It is a pleasure and a privilege to introduce Norman Ford's book. When I was chairman of the Committee of Enquiry on Human Fertilisation and Embryology, which reported in 1984, I tried hard to deter members of the Committee from asking the question *When does Life Begin?*. I thought it an ambiguous and misleading question. The answers to it could be unhelpfully various. Eggs, sperm, even individual cells, could all be said to be human and alive. As I saw it, we had to concentrate on the question when human life becomes morally and legally important. When do we have to ensure that human embryos are given the full protection of the law? At what stage in the development of the embryo should it be a criminal offence to use it for purposes of research? These were the pragmatic questions we tried to answer, in order to give advice to future legislators.

Norman Ford, in contrast, insists on raising the question when does an individual human being come into existence. He is interested in, and learned about, the old enigma of 'ensoulment'. But he is determined that the answers to such questions must be based on knowledge. He therefore examines the development of the human embryo immediately after fertilisation, using the knowledge that embryology now gives us.

As long as there is a possibility of two embryos, or none, developing from the loose conglomeration of cells that forms from the fertilised egg, he is not prepared to regard this conglomeration as a single entity. A singular noun is inappropriate for naming the collection of cells at this stage. He therefore cannot regard the pre-14-day embryo as a human individual. The answer to his question *When did I begin?* is '15 or so days from fertilisation'. It is at that stage that the human individual, of infinite worth, comes into existence.

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I agree with his conclusion. But that is by the way. The true importance of Norman Ford's book lies in his determination to follow the argument wherever it leads: to search out and pursue the truth. His principle is that we must find out, as far as possible, where the truth lies, and then make moral sense of what we find. He succeeds in doing this. The spirit of courage, honesty and moral integrity shines through his book. It is a work of great significance, both for now and for the future.

Mary Warnock



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## PREFACE

### **1 Why did I write this book?**

As a lecturer in moral philosophy and in the philosophy of the human person, it has always been important for me to know when a human person begins. In cases of rape it was necessary to know how long after the attack it was morally permissible to attempt to prevent a human embryo originating as a result of violence. This knowledge was crucial in differentiating morally between actions that prevented conception and those whose effect was really abortifacient. It became more pressing for me to be sure of my grounds on this issue once the freezing of human embryos began in some programmes of *in vitro* fertilization. Community debates in the media on the moral status of the human embryo convinced me of the necessity to inquire further into this question. Living in Melbourne provided the motivation and opportunities to learn the relevant scientific facts of early human embryology for a proper philosophical consideration of the question.

I had always believed, and taught for over 15 years, the commonly held traditional view that a human person begins once the process of fertilization is completed, i.e. once the pronuclei of the sperm and egg mix together. This gives rise to a single-cell human embryo, a zygote, whose genetic individuality and uniqueness remain unchanged during normal development. From that point on, cell divisions and differentiation are programmed for the organization and growth of the same developing human individual already present in the zygote. From the outset, the intrinsic unity of being in the embryo is evidenced by its unidirectional development and growth as one and the same living human being. According to this account the zygote is an actual human individual and not simply a potential human person in much the same way as an infant is

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an actual human person with potential to develop to maturity and not just a potential person. A person is an individual being. The zygote is an individual cell. It is easy to understand the zygote as a human individual with the potential to develop. Even when identical twinning happens, either the first human individual ceases when it divides and two new human individuals begin, or the original human individual continues when a newly formed twin begins. Identical twinning, of itself, does not in principle prove that the zygote could not be a human individual from the beginning. This view was in theory coherent but not necessarily correct; it was soon to be challenged on the grounds that it conflicted with newly discovered biological facts.

Though I had previously read arguments for delaying the beginning of human personhood for a couple of weeks, I was not convinced by the reasons adduced. My belief in the truth of the above account was first seriously shaken by the following extract from a letter by Professor Carl Wood published in the Melbourne newspaper *The Age* on 15 November 1982:

The early embryo (up to eight cells) does have genetic individuality, but a multicellular individual is still not present. Two early embryos can be fused into one and one early embryo can divide into twins. Each cell behaves as if it is significantly independent of the other cells. Since persons, as usually defined, are multicellular individuals, it is difficult to maintain scientifically that a person has come into existence before the eight-cell stage. At least in a developmental sense, the early embryo is pre-individual.

It was this letter, with its hint of new evidence concerning the individuality of the early embryo that aroused my curiosity and triggered the absorbing research that eventually led me to write this book. For a few months I stopped researching because I was concerned my work would give the false impression that I favoured experimentation on human embryos. In this regard I stand by the latest teachings of the Catholic Church which shall be mentioned briefly towards the end of Chapter 2. I decided the right thing to do was to publish my findings as a responsible contribution to the search for the truth concerning when a human person begins. No long-term advantage is gained by suppressing the search for truth. In any case, a pro-life position cannot be effectively supported by dubious or false premises in relation to the beginning of the human person.

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**2 Methodology**

The nature of this research was essentially inter-disciplinary, involving the disciplines of philosophy, scientific embryology and the history of both in relation to the beginning of the human individual. Tangentially, the history of the question did also touch on theological topics. Those interested in studying these topics would need to become acquainted with both philosophy and science. Few philosophers would be acquainted with early human embryology and few scientists would feel at home with philosophy. Many inter-disciplinary problems are touched on, but not pursued with full vigour where this is not required to establish the central thesis of the book. I did not think I should attempt to write an elementary book on human embryology for the benefit of my philosopher readers. Such books already abound. It seemed preferable to explain the necessary philosophical concepts and principles that ought to be employed and apply them to the facts of early human embryology. In this way philosophers, clerics and theologians who had some knowledge of early human embryology would be able to follow my line of argument. Equally, doctors, embryologists, medical students, nurses and students of the biological sciences would be able to follow the philosophical reasonings, as they have been explained for their benefit. Longer notes were necessary in the historical chapter to cater for the needs of those who wanted more detailed information on philosophy or theology than I assumed my average reader would require. In general, I have tried to provide for the needs of my readers with more enquiring minds in the notes by way of precise references and more detailed treatment of issues under discussion. Problems are raised early in the book, even in the Preface, to acquaint the reader with the issues but not to solve them immediately. In this way I have tried to prepare the reader to grasp the application of the philosophical concepts to the biological evidence given in the final chapters in the hope that the solution I propose may be found persuasive in the end.

**3 Outline of treatment**

I shall now provide a brief outline of the leading ideas and arguments of the book chapter-by-chapter to facilitate the reading of what might otherwise prove difficult.

In the first chapter additional reasons are given for the need of this book. Government reports touching on human embryos have been unable to resolve when the human individual or person begins. Linguistic usage of terms such as human life, human being, conception, embryo, etc., have

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to be analysed to understand their original pre-scientific meanings, as well as their contemporary employment in ordinary discourse. More importantly, from this chapter it is necessary to realize that modern science is quite relevant to the resolution of this problem even though it more properly pertains to philosophical reasoning to determine questions about the meaning and beginning of human personhood. All the same, philosophical induction cannot proceed without basing its reasoning on the findings of modern embryology.

Any philosophical theory that places the beginning of the human person at fertilization needs to be examined if it appears to conflict with the facts of modern biology. It is the role of philosophy to provide theories and conclusions that fit and explain the facts. There is no need to be afraid of the facts of experience or sound scientific data in the quest to uncover the objective philosophical truth about the beginning of the human person. Traditionally held philosophical theories and assumptions must be abandoned once their factual presuppositions fail to provide them with adequate support. All the available evidence is to be assessed objectively without allowing oneself to be swayed from the truth by personal preferences that fail to satisfy the relevant criteria of truth.

For about two thousand years the opinions of Aristotle, the great Greek philosopher and naturalist, on the beginning of the human being were commonly held. Chapter 2 explains the historical and cultural impact of his views up to our times. The model of his thinking was that of a potter who uses clay as material to make a vase. He argued that the male semen had a special power residing in it, *pneuma*, to transform the menstrual blood, first into a living being with a vegetative soul after seven days, and subsequently into one with a sensitive soul 40 days after contact with the male semen. At some unspecified time after this, rational ensoulment occurred. Aquinas adopted Aristotle's theory but specified that rational ensoulment took place through the creative act of God to transform the living creature into a human being once it had acquired a sensitive soul. The first *conception* took place over seven days, while the second conception or complete formation of the living individual with a complete human nature lasted 40 days. The blood was always potentially a human being, but not an actual human being until the formative action of the semen's *pneuma* or *air* was completed and complemented by the creation of a rational soul which thereafter performed the functions of the former vegetative and sensitive souls. The soul is also called a *form* because it shapes or forms matter from within into a specific kind of material being.

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In short, the rational soul enables matter to become a human being, an animated body, an embodied soul, a human person.

Harvey's experiments with deer in 1633 proved Aristotle's theory of human reproduction wrong, without himself finding a satisfactory explanation of human conception. The use of primitive microscopes coupled with a lively imagination and a desire to establish rational ensoulment at the very beginning led to claims that a completely formed miniature human being (*homunculus*) could be seen in the sperm head. After modern scientists discovered the process of fertilization most people took for granted that the human being, complete with a rational soul, began once fertilization had taken place. The Catholic Church in particular, not finding any positive answers to this question in the Bible, over the centuries has always adopted the commonly accepted well-informed opinion of the day. Her main concern in this regard is ever to teach and promote the respect and protection morally due to human life from its outset, whether it is already personal or not. Today she presupposes that the zygote is already a human being with personal life, but does not expressly teach this doctrine. In so doing she accepts the commonly held view. The Church is well aware that some scholars around the world are discussing the beginning of the human person in relation to the biological beginning of human life, the establishment of the new individual's genetic individuality and the requirement of continuity of ontological identity.

After the introduction to philosophical reflection in the previous historical chapter, the reader is well prepared in Chapter 3 to confront the central philosophical concepts that need to be employed to determine what a human person is and when one begins. In the human person, soul and matter are one, constituting the characteristic psychosomatic unity of the human individual, a living human body and a unique ontological entity. It is not a question of finding out when a human individual begins to have personal experiences of his or her worth, or begins to be a moral agent after attaining the age of reason. It is not simply a matter of establishing when each one's genetic individuality begins. It is well known this occurs at fertilization. It is more a matter of finding out how far we can trace back our own personal identity as the same continuing individual living body, being or entity. This is what is meant by the ontological individuality or identity of a living person. An ontological individual is a distinct being that is not an aggregate of smaller things nor merely a part of a greater whole. Although the millions of cells in our bodies are genetically identical, each one is not an ontological individual or separate entity. There is only one human individual that really exists in the primary

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sense of actual existence, though there are many cells that share in the existence of that single living ontological individual. A human person is a distinct living ontological individual with a truly human nature. A human person cannot exist before the formation of a distinct living ontological individual with a truly human nature that retains the same ontological identity throughout successive stages of development. In this sense we judge that the adult is the same ontological individual as the child, the infant and even the fetus prior to birth. It will be necessary to consider the relevant embryological facts before determining that stage in embryological development before which there could not be an individual living body with a truly human nature that retains the same ontological identity from that point onwards.

Chapter 4 attempts to relate these philosophical concepts and principles to the biological data of human generation or reproduction. I have already presented the case for the commonly held view that the human individual begins when the zygote is formed at fertilization. Persuasive philosophical arguments, based on scientific evidence, suggest that this could not be so. We should not *a priori* and uncritically accept that because human genetic individuality is established from the zygote stage onwards, the zygote itself is a human individual. Human genetic individuality is not to be confused with human ontological individuality.

We need to see if the ontological individuality or identity of the zygote is retained from the first mitotic division onwards. The fact that identical twinning may occasionally occur at the zygote stage when it divides into the first two daughter cells raises a difficulty for the zygote being a human individual. If the zygote is a person, which of the two identical daughter cells is the original person when twinning occurs at that stage? Logic and common sense would favour saying two new human individuals begin in that case. The argument can be taken further. Every zygote has the capacity or potential to form twins at that stage. In other words, every human zygote, in the hypothesis under consideration, would be a human individual because of its central organization and capacity to continue as the same ontological individual until the adult stage. At the same time, and by the same token, each zygote could be regarded as two human individuals, because it also has the capacity to become two human individuals. How could a zygote be one distinct human individual whilst it still had the capacity to become more than one distinct individual? It might be said a cutting from a tree, once planted in the soil, may give rise to another tree without prejudice to the fact a tree was there in the first place. The short answer is that a tree is not a human zygote or a human

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individual. The biological structures of the tree and the human zygote reveal the essential differences that are relevant to determining whether one living individual continues in being or whether two new ones begin. The single-cell human zygote does not seem to be the same ontological individual as either one or both of its daughter cells. The evidence does not seem to support the required continuity of ontological identity from zygote to early embryo, and much less from zygote to fetus, infant, child and adult.

In Chapter 5 a similar case is argued, based on identical twinning occurring up to about 14 days after fertilization. It should not be assumed that a genetically unique human zygote is the same ontological individual as the resulting blastocyst, definitive embryo proper, fetus and child, notwithstanding the continuity of the same biological identity at every stage of development. Human twins that are genetically identical are nevertheless different ontological individuals. Furthermore, analysis of the evidence shows that early embryonic cells inside the zona pellucida lack the requisite unity to constitute a single ontological entity. Each is totipotent. They appear to have too much independence of behaviour to constitute one individual. This alone would preclude them from being a human individual until the multiplying cells formed themselves into a single multicellular human body. Furthermore, experiments with mice show how single cells taken from three separate early mouse embryos can be aggregated to form a single viable chimaeric mouse embryo. In this case the resultant individual mouse certainly did not begin at the zygote stage. This suggests that perhaps in the normal situation the proliferating and developing cells amalgamate at a later stage to form the definitive individual body, be it that of a mouse or a human individual.

All during the morula stage and prior to the early blastocyst stage the developing cells have not yet differentiated sufficiently to determine which cells will form the extraembryonic membranes (e.g. placenta) and those which will form the inner cell mass, from which will develop the embryo proper and fetus. Animal experiments show that by the late blastocyst stage when the inner cell mass is already formed, it is not yet determined which cells will give rise to the definitive embryo proper that will develop and grow into the fetus. It is argued a human individual cannot be present before it is actually formed. The traditional insight over the centuries remains ever valid: a potential human individual cannot be an actual human individual. There can be no person before the actual formation of a human individual, beginning as an on-going distinct individual embryonic human body.

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Chapter 6 attempts to give an answer to when a human individual begins after stressing some differences between the development of eutherian mammals and amphibians. The former first need to form the placenta before forming the embryo proper, while the latter have no such need. With the appearance of the primitive streak after the completion of implantation and about 14 days after fertilization identical twinning can no longer occur. This is when the human body is first formed with a definite body plan and definitive axis of symmetry. Prior to this stage it would seem to be quite unreal to speak of the presence of a distinct human individual. This suggests that before this time genetically human embryonic cells could not develop into a human individual with a true human nature and a continuing ontological identity. If I am right, the early embryonic human cells could not constitute an actual human individual. Instead they would have the potency to form one or more human individuals. It seems that the biological evidence leads to the philosophical conclusion that a human individual, our youngest neighbour and member of the human community, begins at the primitive streak stage and not prior to it, but most certainly by the stage of gastrulation when the human embryo's primitive cardiovascular system is already functioning and blood is circulating.

**4 Acknowledgements**

It would not have been possible for me to attempt this project without the expert tuition, advice and constant encouragement from both Dr Alan Trounson, and Professor Roger Short in particular, who read and commented on several drafts of the text. I am most grateful to them for so generously giving me their time and sharing their knowledge with me whilst urging me at the same time to adhere to the teachings of my own Church. I am also indebted to Professor Carl Wood, Professor Robert MacMahon, Dr Shaun Brennecke, Dr Marie Dziadek and Dr Jeff Mann for their support and helpful criticisms of parts of my manuscript. I especially appreciated the valuable suggestions of Dr Anne McLaren and Professor John Hearn, who read the text in draft form. With the support of all the above experts in the biological sciences I felt I could confidently tackle the philosophical aspects of the conception and beginning of the human individual.

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Acreman S.D.B., Rev. Max Grabau, the Rev. Dr John Begley S.J. and the Rev. Dr Thomas Daly S.J. for their helpful criticisms of my first draft. It goes without saying that I cannot claim they share all my views expressed in the final draft. I am most appreciative to Sr Therese Farrell, O.L.S.H., and Sr Margaret Bentley, F.M.A. for their help in improving the language, style and presentation of the text. In particular I am indebted to Dr Robin Pellew for his much appreciated support in the publishing of this book and to Ms Sheila Shepherd for her invaluable suggestions. I am most grateful to Mrs Susan Drew for her kindness, understanding and patience in typing all five drafts and the final copy of the text. Finally, I would like to thank the many publishers and authors for permission to reproduce some of their material, diagrams and photos.

My last and special word of thanks must be reserved<sup>1</sup> to Baroness Warnock for kindly obliging to write a foreword for my book. Though our general philosophical outlooks differ in so many significant ways, we do share a common interest in the central themes of this book and substantially agree on the answer given to the question in its title – *When Did I Begin?*

*Salesian Theological College  
Oakleigh, Victoria, Australia  
April 1987*