{The beginning of the series comprised of four Parts. Part I contains the General Introduction, and Section I which describes Our Origination}

"Where do I begin?

To tell the story of how great a love can be
The sweet love story that is older than the sea",

or perhaps contrary to Carl Sigman's sentiments, the title should be "When did I begin?", and it is by the grace of Love who is older than the sea - but not when the Salesian theologian and priest Norman Ford said it did in his synonymous publication in 1988.

Introduction

Arguments about the child conceived in rape, or in incest, and the child with a disease or disability detectable or suspected *in utero* such as a probable diagnosis of genetic anomalies such as Down's syndrome, continue to be advanced to begin the slide of legislature after legislature, nation after nation, and minds and communities down the slippery slope of accepting, endorsing and fighting for what is euphemistically referred to as reproductive rights, justifying of deliberate abortion and celebrating on the streets when the laws of death are promulgated. What began as false solutions to the extremely rare occurrences such as conception consequent to rape, gets extended to selective abortions based on sex, partial birth abortions, Dutch-initiated legal infanticide now prevalent in Flanders fields, propagation of cell lines derived from victims of elective abortion, the foetal body parts industry, so-called euthanasia for the comatose or otherwise incapacitated and physician-assisted suicide. Acceptance of far-reaching principles can be and have been garnered by pushing at the borders and highlighting the extreme cases, coupled with depersonalising vulnerable categories of human beings *via* linguistic gymnastics and plastic philosophies.

The assault on the youngest and smallest among us disingenuously employs, imaginatively invents and artistically misconstrues ideas, and subjects the science of embryology to semantics and outright falsification, in order to prime consciences into acceptance of abortifacient drugs and devices deceptively called contraceptives, human cloning, artificial reproductive technologies, embryonic "stem" cell harvesting and research, and embryonic experimentations, among various technologies and applications that involve production, manipulation or destruction of human beings at the earliest times in our ontogeny. The falsehoods constituting this assault have been empowered with perceived intellectual credibility predominantly *via* schools of pseudo-philososcience clothed in respectability within the discipline of bioethics established for the purpose, and they have been making their rounds for decades - and are still being pushed on the willingly receptive and gullible despite contrary objective evidence.

It is important to seek and reveal the truth since deceived victims of the false arguments, some of whom may be genuinely devoted to the advancement of medicine, science and society, are more likely to believe in the dehumanisation of the very young, and by extension the weak, the sick, the relatively different, the senile, or even the poor, and formulate justifications for the offenses against them, which substantially contributes towards empowering the culture of death. Without seeing in the light of truth, those who might be valiant soldiers for love and life, may instead propagate death and indignity through active participation or quiescent apathy when they could, having realised the truth, challenge and combat it.

Structure

The sublime facts regarding our origin and the consequent early period of our embryonic life will be described with respect to our development, the time scale, materno-relative location and the corresponding associated processes of fertilisation and implantation. In addition to the natural and usual events of sexual reproduction in generating a human being, some less common but naturally occurring events, and some that are engineered, will be outlined.

Thereafter the philosophical concepts pertaining to the discussions regarding our humanity and dignity in our earliest days will be identified, explained and where applicable their non-applicability exposed. Among the philosophical, politico-legal and theological conceptual arguments, those related to *inter alia* personhood, ensoulment, damnation, potentiality, wastage, hominisation and individuation will be addressed. The use of scientific information or misinformation in justifying the applicability of the philoso-conceptual arguments, or objections, will be presented. Subsequently, scientific knowledge will be coupled with reason to point out, clarify and correct the science-based errors and the false science employed to apparently scientifically justify the conceptual arguments.

"Human beings" is used here in the sense of what a layman may describe as members of the human race – irrespective of size, age, form, present or anticipated capabilities or propensities, functional or physical accomplishments, psycho-mental-emotional state, genetic wholeness and integrity, or the state of health whether normal or abnormal - and they all are those for whom the Word was made Flesh in order that they may be Redeemed. Genetic and anthropological limits and definitions by which a human being is defined are important, but not treated here, and neither are chromosomal abnormalities such as aneuploidies, unusual euploidies, andro- and gyno-genesis and consequent developmental disease, while bringing to mind that adults and post-natal children could have congenital abnormalities or become grossly deformed due to internal malady or external cause.

Further, the realities of animal-human hybrids in the laboratories of today's fig-eaters and the genomic manipulations in therapy and in eugenic biodesign for the creation of *übermensch* are not addressed, and neither are abstract metaphysico-ontological philosophies. A theme complementary to the question of when we begin, that of the definition of death, will in its pursual provide perspective on the former. The role of the Kennedys, dissident Catholic theologians Drinian, Curran, Rahner, McCormick, Fuchs and others in laying the casuistic foundations for the downfall of sanity, and the impact of their thinking on the legislative and regulatory landscape regarding early embryonic manipulation and elective abortion will only be touched *en passant*.

Section I – Ab origine

"Faith and reason are like two wings on which the human spirit rises to the contemplation of truth; and God has placed in the human heart a desire to know the truth—in a word, to know Himself—so that, by knowing and loving God, men and women may also come to the fullness of truth about themselves" (cf. Ex 33:18; Ps 27:8-9; 63:2-3; Jn 14:8; 1 Jn 3:2).

Fides et Ratio

The Miracle on the Ampulla

The oocyte has a remarkable story, being derived from primordial germ cells that migrated ventrally through the primitive streak to the posterior endoderm, gathered at the junction of the future hindgut and the wall of the umbilical vesicle, and then moved into the genital ridge that would be the site of the developing ovary of the mother-to-be when she herself was in her own mother's womb. These cells differentiated into oogonia that produced the primary oocytes which began to undergo meiosis but were arrested in prophase of meiosis I, and they remain at this diplotene or dictyate state of arrested meiosis I for years, even half a century, from the foetal stage thorough birth until the onset of the pubertal stage when some of them begin to mature. These primary oocytes together with their surrounding epithelial cells that indicate the first phase of folliculogenesis, are referred to as primordial follicles.

Complete maturation of a follicle, which may proceed over a year, occurs every month during the time from puberty until the end of the fertile age. A preovulatory follicle with an oocyte enveloped within the *zona pellucida* and surrounded by layers of specialised granulosa cells and containing a fluid-filled antrum, if recruited for maturation will develop rapidly through its later stages forming an ovulatory follicle over about twenty days. Associated with acquisition of full developmental competence in the oocyte in the final stages of its growth which began at the time of antrum formation is the decline in transcription and eventual transcriptional quiescence - and retention of a pool of mRNA transcripts not needed by the oocyte but is stored for inheritance and translation by the embryo.

Under the influence primarily of the luteinising hormone, the primary oocyte resumes and completes meiosis I and is henceforth called a secondary oocyte and ovulation may take place enabling the oocyte to embark into the oviduct, carrying its inner layers of granulosa cells, the *cumulus oophorus*, with it. The secondary oocyte in turn commences meiosis II but this process is then arrested at metaphase of meiosis II, and the secondary oocyte completes its development and becomes a highly differentiated and terminally specialised cell whose destiny is to be fertilised. This final stage in the long life of the oocyte may last 12-20 hours during which the climax of fertilisation may begin.

In the case of the spermatozoon, while the germ cells have a similar origin, it is only at puberty that spermatogenesis begins, and there is a continuous process of the spermatogonia forming the primary spermatocyte by mitosis, and the uninterrupted meiosis I that gives rise to the secondary spermatocytes and uninterrupted meiosis II that forms the spermatid which *via* morphological alteration known as spermiogenesis produces the specialised spermatozoon destined to propel itself with its flagellum powered by its mitochondrial mid-piece, and encounter and unite with a secondary oocyte in the state of meiotic II arrest and awaiting this union. For the sperm to interact with the oocyte it needs to become capacitated, capacitation consisting of several changes, assisted by secretions from the uterus, that enable the sperm to trigger the acrosome reaction, and which makes the sperm plasma and outer acrosome membranes more fusogenic.

The oviduct provides the optimal environment for the interaction between a mature and motile spermatozoon and a secondary oocyte. Subsequent to mutual recognition, when a spermatozoon makes contact with a secondary oocyte the process of fertilisation begins. The head of the spermatozoon binds to the *zona pellucida* and its apical body the acrosome releases its contents that degrade it locally and the oocyte surface membrane the oolemma, creating confluence between the two cells. The oocyte is thenceforth penetrated by the haploid paternal gamete. Cytoplasmic continuity is enabled through this fusion of their membranes, and the two become one. Instantaneous electrical depolarisation of the membrane and subsequent morphological change in the *zona pellucida* triggered by cortical granule

exocytosis into the perivitelline space acts to prevent a competing spermatozoon from gaining entry. This one that the two became is referred to as the primordial embryo and all the genetic material necessary for the new individual is now within a single plasmalemma. At this point in the process of fertilisation, a new male or female human being has been procreated, who did not exist before. The oocyte once penetrated, is no longer an oocyte but the product of the union between the paternal and maternal gametes.

By reason that the fully matured secondary oocyte is penetrated by a spermatozoon, and because of a sperm protein and the existing cellular machinery that enables it, the primordial embryo resumes the arrested meiosis II of the maternal genetic donation, in a process that is inaccurately referred to as "oocyte activation" at the end of which redundant chromosomes are expelled as the second polar body, and the embryo may now be referred to as the pronuclear embryo. The paternal pronucleus forms near the site of sperm entry and it is usually larger than the maternal pronucleus which forms near where the second polar body is extruded. Referring to the pronuclear embryo as an ootid since the maternal genetic component is haploid like the spermatid which is a phase in spermatogenesis prior to spermiogenesis *via* which the spermatozoa form, is incorrect since there subsist in the pronuclear embryo two separate maternal and paternal haploid components.

The paternal and maternal pronuclei move towards each other and halfway through the process of fertilisation they lie adjacent to each other in the centre of the cell their envelopes pressing into each other. The pronuclei envelopes do not fuse but breakdown, often the maternal envelope before the paternal and they rotate and align in preparation for syngamy. The process of fertilisation ends when pronuclei unite and the parental chromosomes come together to establish the embryo's genome. Consequent to this relatively fast process of syngamy, the embryo is referred to as the syngamic embryo or zygote, and the process of fertilisation is complete. The zygote rapidly forms a mitotic spindle enabled by the centriole received from the paternal gamete and the chromosomes assume their positions in preparation for the first cleavage. The metaphase of the first mitotic division which can be visually confirmed is a confirmation of syngamy, and an indication that fertilisation, a process taking a day or a few hours longer, had been completed.

The parental gametes that were highly and terminally differentiated cells have mutually self-sacrificed themselves and lost their identity in their union and have generated someone new, they themselves ceasing to exist in doing so when fertilisation is accomplished. A new individual, a discrete entity, who did not exist before, a totipotent cell, the embryonic child has been procreated by the parents and co-created by the grace of God and lives.

The self-government of the embryo, employing the inherited maternal cellular machinery, commences with genome activation and reprogramming of gene expression that reflects the development program of the embryo, evidence for which exists even during the process of fertilisation where the primordial embryo is transcriptionally active, the paternal pronucleus found to be more active than the maternal. Genes involved in mRNA splicing and in transcription become active to ensure genome activation is irreversible and robust, as do genes governing nucleotide metabolism which enable DNA replication, those involved in ribosome biogenesis to meet the increased demand for protein synthesis for the developing embryo, and the housekeeping genes to meet the increasing demands on energy production. Furthermore, regulated *via* miRNAs, endo-siRNAs and piRNAs, the mRNAs are selectively degraded mediated *via* proteasomes as are maternal proteins. This phenomenon is referred to as embryonic

genome activation which forms one aspect of the remarkable oocyte-to-embryo transition which is a marvel that has fascinated and continues to fascinate scientists be they reproductive biologists, developmental biologists, cell biologists, molecular biologists or other scientists concerned with embryology, and it is the most dynamic of transitions in biology.

The new human being with his own genome and who directs his own growth and development is neither part of his mother or his father. The embryo has the potential to develop into all subsequent stages in the life of a human being, but it cannot develop into an embryo because it already is an embryo. This new individual, generated from the union of spermatozoon and oocyte, if killed would die. If I am killed when I am an embryo, I die. We can die at any time after we are generated, but we cannot be said to be conceived or have begun at any time other than when we originated so that we may killed before that for lacking moral status. Everyone conceived naturally and normally began their existence in this way and at this point. From this beginning there has been continuous growth and development, constituted of several milestones within the continuum of our ontogeny.

{End of Part I of IV. Part II: Our earliest hours & days, and the unusual and unnatural means of making men}

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