We know that maternal movement and change of position provoke foetal movement, that if we want a foetus lying still and unsuspecting for some diagnostic or therapeutic procedure it is necessary to have mother lying still and comfortable for 15 to 20 minutes to allow the foetus to find a position of comfort. Further, we must avoid last minute palpations and auscultations. Compare these precautions with the performance and restlessness of many pregnant women in bed—with the leg cramps and heartburn, the subcostal and pelvic girdle discomfort, and for variation a trip or two to the bathroom. The neonate could perhaps be forgiven if, as a foetus, he had gained the impression that night was anything but a time for rest.

A similar *cri de coeur* concerns those young babies who cussedly elect to have their briefest rest periods and shortest intervals between feeds in the late afternoon and at dinner time just when it would be most helpful if they would sleep. For the breast fed baby, a ready explanation arises from the fact that there is a striking diurnal variation in the fat content of human milk—from as high as 9 per cent in the early morning to as low as 1 per cent in the afternoon. Hence the breast fed baby may be shortchanged on calories on his afternoon feeds. However, precisely the same pattern may be seen in the bottle-fed baby, and we are left with the suspicion that the foetus may have been conditioned to the fact that this time of day represents peak activity for mother and peak uproar in many households.

A question very commonly asked is whether maternal emotion—elation, fear, anxiety, may be communicated to or influence the foetus. Certainly, with monitored foetal hearts there may be abrupt changes in rate with sudden maternal emotion. Such responses could be mediated indirectly by changes in maternal arterial pressure, or directly by substances, for instance catecholamines, which cross the placenta. It has been argued that since the foetus experiences only the consequences and not the cause of the emotion itself the experience would mean nothing to him. More recently this view has been challenged on the evidence that the pharmacological induction of the physiological responses to fear and anxiety induces the sensation of fear and anxiety also—but this may be just a learned response.

It is apparent that many more questions may be asked but as yet few answers given. What I have tried to do is to provide a background, so that by asking the right questions in the right way we might some time get the right answers. We may not all live to grow old but we were each once a foetus ourselves. As such we had some engaging qualities which unfortunately we lost as we grew older. We were physically and physiologically robust. We were supple and not obese. Our most depraved vice was thumbsucking, and the worst consequence of drinking liquor was hiccups not alcoholism.

When our cords were cut, we were not severed from our mothers but from our own organs—our placentae—which were appropriate to our old environment but unnecessary in our new one. We do not regard the foetal circulatory system, different as it is from the child's or adult's, as one big heap of congenital defects but as a system superbly adapted to his circumstances. We no longer regard foetal and neonatal renal function, assymetric as it is by adult standards, as inferior, but rather entirely appropriate to the osmometric conditions in which it has to work. Is it too much to ask therefore that perhaps we should accord also to foetal personality and behaviour, rudimentary as they may appear by adult standards, the same consideration and respect?

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THE PROBLEM OF ABORTION†

DAVID R. NICHOLAS* AND GEORGE F. HOWE**

The preceding article, by Liley, contains the facts about the nature of the fetus. It is good first to get facts; but sometimes facts are not enough, action is called for, as St. James 1:22 points out. Here the authors draw the conclusions which follow from the nature of the fetus, and from the teaching of Scripture.

Introduction

In His great wisdom God has determined that physical life shall pass from one generation to another across a fragile bridge of just two cells. To understand this link and how a separate life begins, one must visualize that structure of a living cell.

The body of an adult is composed of about 90 trillion cells. Different kinds of cells vary in their structure, but each one is a living sac covered by a cytoplasmic membrane that surrounds the jellylike cytoplasm.

Although the cytoplasm is a fascinating region with a specific internal structure and organization, another area is of crucial interest. The nucleus, which is

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†This article was published in *The Baptist Bulletin*, beginning on page 10, April 1971, and is reprinted here, in a somewhat condensed form, by permission. This is a little different from the usual article in the *Quarterly*. Yet readers will agree that there comes a time when Christians must take a stand on matters such as the one considered here.

The abstract, given above, was not part of the original article; and the Conclusions have been re-written to fit in better with this condensed version. — Editor

engulfed by the cytoplasm, is a slightly flattened sphere. Surrounded by a nuclear membrane, the nucleus houses several finger-shaped chromosomes that carry a chemical material known as DNA which controls exact duplication of cells.

The number of chromosomes present in the cells of any living organism is specific and surprisingly constant. The nucleus of nearly every human cell contains 46 chromosomes, while nuclei of corn cells have 20 and horseworm cells possess only four. The even number in each instance shows that chromosomes within the nuclei of many creatures come in pairs—two of each type. In the typical human nucleus, for example, there are actually only 23 different types of chromosomes so that two of each type provide the final tally of 46.

The marvelous basis for human reproduction is the fact that the organs involved (ovaries and testes) produce special gamete cells which contain only half the normal adult number of chromosomes—one of each pair. Thus each of the many sperms produced in the testes of a man contains a nucleus with a total of only 23 chromosomes. Likewise, the egg cell released each month from the ovaries of a woman contains but 23.

The egg or sperm cells are simply portions of the adult body which are particularly capable of uniting to form a new individual. Before such union has taken place, however, the egg cell or the sperm is by no means a separate being but rather a cell of the parent's body with exactly half the general number of chromosomes.

Fertilization Occurs

Fertilization is an amazing process in which only one sperm unites with the egg. Billions of sperms are present, of course, and are essential because each one carries a small portion of an enzyme which is required in large amounts to permit any penetration of a layer that protects the egg. After a channel has been digested through this jacket and one sperm has finally entered, a fertilization membrane forms immediately around the egg cell. This covering immediately renders the fertilized egg impervious to other sperms which still surround it in great numbers. Soon the nucleus of the one sperm unites with the nucleus of the egg at which instant the number 46 is restored among the chromosomes. The fertilized egg so formed can no longer be viewed as a mere portion of either parent's body but is a separate cell with the usual chromosome number—*the first cell of a new human being.*

The single cell passes through a sequence of changes that would stagger the wildest visions of a design engineer. Descriptions of these events fill thousands of pages in embryology textbooks. By repeated divisions, the first cell becomes two, then four, then eight, and finally yields a delicate living sphere of many cells called the blastocyst.

Becoming attached to the rich nutritive lining of the mother's uterus, the blastocyst continues to grow. A portion of this cell mass becomes the placenta, a nutritive link through which food and oxygen pass from the mother to the developing child. Another cluster of cells in the blastocyst forms layers which mysteriously cooperate in the synthesis of organs in the tiny body. A twentieth-century knowledge of embryonic growth would have added to the awe which the Psalmist felt as he contemplated God's role in governing the formation of a living fetus:

> Thou hast covered me in my mother's womb . . . My substance was not hid from thee, when I was made in secret, and curiously wrought in the lowest parts of the earth. Thine eyes did see my substance, yet being unperfect; and in thy book all my members were written, which in continuance were fashioned, when as yet there was none of them (Ps. 139: 13, 15, 16).

At birth the contact with the placenta through the umbilical cord is severed. With a gasping breath the infant fills his own lungs with air for the first time and experiences major changes in his blood circulatory system. The newborn child is indisputably human; but at least the physical stamp of man was seen upon his form much earlier.

A continuum of uninterrupted biological development leads from single cell to blastocyst and then from blastocyst to an embryo's miniature frame. At only 26 days the little body has a heart, limb buds and blocks of muscle tissue. Although it is only about three-fourths of an inch long after forty days, the embryo possesses eyes, ears, and minute hands. At 56 days an unmistakably human physical structure is present, complete with fingers, toes, and ribs.

But when does the developing embryo become a completely human being in the fullest and Biblical sense of the term? No absolute answer can be given to this question at present and several opinions prevail. This means that there is no fixed point in embryonic development before which one could kill the fetus and safely say he had not thereby extinguished a human life.

Abortion and the Bible

The expulsion of a human fetus from the uterus prematurely, with the stoppage of its life, is known as abortion. In a few pregnancies the embryo dies and abortion occurs spontaneously. The current interest in abortion has nothing to do with such natural miscarriages, but is rather about the deliberate unnatural termination of embryonic life, which is often called therapeutic abortion.

Definite mention of therapeutic abortion does not occur in Scripture. Biblical law does deal with miscarriage caused by a blow to the mother:

> If men strive, and hurt a woman with child, so that her fruit depart from her, and yet no mischief follow: he shall be surely punished, according as the woman's husband will lay upon him; and he shall pay as the judges determine. And if any mischief follow, then thou shalt give life for life (Exod. 21: 22, 23).

Dr. Bruce K. Waltke,* Professor of Semitics and Old Testament at Dallas Theological Seminary, believes these verses describe a case in which a woman suffered a miscarriage with the death of the fetus. He holds that the further "mischief" which might follow refers to death or injury of the mother also. He concludes that

*Note added in page proof: Readers will find that Dr. Waltke has changed his position on these verses in his article in the 1976 spring issue of *Bibliotheca Sacra.*

God did not impose the death penalty if only the fetus dies with no harm to the mother, but exacted instead a money compensation to indemnify the father for his loss. (See *Birth Control and the Christian*, published by Tyndale House, Wheaton, Ill.)

Another view of Exodus 21:22, 23 is possible, as Keil and Delitzsch have made plain (Pent. II, pp. 134, 135). Possibly the "mischief" which might follow and which would require life for life was not limited to the killing of the mother alone; perhaps it also covered the death of the unborn child. Verse 22 might then have dealt with the instance in which the blow had caused the woman to deliver her child prematurely and neither mother nor child was permanently harmed. In such a case, the offender was to pay a fine for his reckless misdeed. But if "mischief" followed, meaning death to either the mother or the unborn child, then a life was to be given for a life.

In neither of these interpretations does Biblical law provide any sanction for abortion. As in the Bible, so in the code of Hammurabi, a miscarriage caused by a man other than the husband always carries an accompanying penalty from death to fines. Furthermore, this passage is a discussion of miscarriage and has no direct application to induced abortions, therapeutic or otherwise!

Dr. Waltke also advances numerous Biblical passages in which conception is viewed as a gift of God. At the birth of Cain, Eve declared that she had received him from the Lord (Gen. 4:1). In Genesis 29:31 it is written that the Lord took pity on Leah, opening her womb. Of Ruth it is recorded that "the Lord gave her conception" (Ruth 4:13). Dr. Waltke also emphasizes the fact that the Scriptures place value on the fetus as seen in David's wonderful words of Psalm 139:13-18.

In a criticism of induced abortions, Dr. John Warwick Montgomery of Trinity Seminary asked this pointed question:

> Should a passage such as Exodus 21† properly outweigh the analogy of the incarnation itself, in which God became man at the moment when conception by the Holy Ghost occurred—not at a later time as the universally condemned and heretical adoptionists alleged? (*See Birth Control and the Christian.*)

One must recognize the sovereign purposes of God in the conception and embryological development of David and Paul. David saw through inspiration that he had been known of God and protected during these early days. The Apostle Paul stated that he was set apart from his mother's womb for a definite purpose:

> But when He who had set me apart, even from my mother's womb, and called me through His grace, was pleased to reveal His Son in me, that I might preach Him among the Gentiles, I did not immediately consult with flesh and blood (Gal. 1: 15, 16, New American Standard Bible).

Since God's plan for reproduction includes the development of life in the willful sexual union between two people, who is man to intervene by destroying the embryo thus conceived?

Conclusions

It has been shown, first, that there is no stage at which the fetus can be said, with any claim to certainty, not to be a human being (Liley's article led to the same conclusion); and secondly, that Scripture shows that the fetus is an object of God's care and concern. In view of these facts, it can hardly be denied that to destroy the fetus is an evil act.

Those who campaign for "abortion by choice" always refuse to debate the question, whether the fetus is a human being. Their arguments ultimately come down to the alleged benefits of abortion. In other words, they are campaigning for evil to be done in order that good may result (or so they say). But it is a general principle, granted by all Christian philosophers, that evil is not to be done on the pretext that good will result. These things having been granted, there is no case for abortion by choice at all.

†Here Montgomery means, supposing the first interpretation of Exodus 21:22, 23, proposed above, to be understood. In any case, even with that interpretation, the passage does not condone abortion or causing a miscarriage, it merely assigns a lighter penalty to it.

RESEARCH SPONSORED AND ENCOURAGED BY THE C. R. S.

An important activity of the Creation Research Society is the conducting, encouraging, and sponsoring of research having a bearing on creation. The following information, about some parts of that activity, was compiled from the report to the annual meeting of the Board of Directors, April 1976, by Dr. Emmett Williams, Chairman of Research; from correspondence with Dr. Williams; and from other sources.

Several research projects, sponsored by the Society, have been reported recently in articles in the *Quarterly*.[1-3]. Projects now being sponsored include the following:

1) The effect of the Earth's magnetic field on the concentration of C-14 as a function of geographic coordinates, height above the Earth, and time.

2) A study of precipitation caused by brine mixing. Actually, there are three separate projects concerned with the matter.

3) *Drosophila* mutants and selection in a rigorous environment.

4) Laboratory formation of dripstone.

The Creation Research Society is interested in supporting other suitable research. Any proposals for such work should be sent to the Chairman of Research, Dr. Emmett Williams, Jr., Bob Jones University, Greenville, South Carolina 29614.

Dr. William J. Tinkle is continuing his studies of mutant plants.[4] He has found tomatoes, and also campion, which come up with three cotyledons (the first

(Continued on Inside Back Cover)