

Chapter 1

The Family Tree - Its Beginnings

“Where did you come from, baby dear?
Out of the Everywhere into the here!”

Where Did Baby Come From?

Yes, where did baby come from? His beginning was in the union of two cells, so small that they could be seen only with the aid of the microscope; yet here he is, complete in every organ and function, with eyes like mother's, nose like grandpa's, and mouth just like dad's. And, as he grows, he gets more and more like Grandfather Brown, develops dyspepsia just like Uncle Art, and a streak of shrewdness in his disposition much like Great-grandfather Ellis, who always struck such a sharp deal in a trade. He is altogether a composite of traits passed down to him from his forebears - inherited, we say. If he is good, he gets it from his ma. If he is bad, he is mostly like his dad. If he is brilliant in mathematics, so was pa at school. If he is dumb in grammar, so was Uncle Phil.

And where did Johnny get that temper? Why, that comes from grandfather on his mother's side. A little tendency to deceive? Yes, there is that great-uncle - the black sheep of the family, with a shady record - evidently he has a bit of him in his make-up. It is all granted that whatever we have or are is inherited from those who have gone before us. Is it all a superstition, as we are finding so many things to be? or is it a scientific truth that, through two tiny cells, traits varied and unnumbered can be passed on through the generations?

Clever things are said now and again, and are passed on to us for our pondering. Here is one credited to Oliver Wendell Holmes, and, no doubt, is familiar to the reader: “Every man is an omnibus in which his ancestors ride. Every now and then one of them sticks his head out of the window and disgraces us.”

What about this complex thing called heredity? How is it that in the two cells, which merged into one begin a new life, there can be the predestination of scores of tendencies and ancestral characteristics, which, faithfully transmitted, show forth in the offspring and exhibit themselves in numerous ways as the years go by? There are so many of these characteristics and such an endless number of character

ALL ABOUT THE BABY

combinations, that no two persons were ever exactly alike, the closest to an exception being in the case of identical twins - when that which would have been one individual divided to make two, one such twin being in a way a half of the other one. 1 Is there any science or system to all this?

Every individual has had his beginning in two cells, which, uniting, made one cell - a female, or egg, cell called an ovum, and a male, or sperm, cell called a spermatozoon. These are the reproductive cells, and are known as germ cells. Amalgamated, they form the cell that is the beginning of a new individual. The unit of all plant and animal life is the cell. Plant and animal tissue is made up of cells,

just as every brick house is made up of bricks or every piece of cloth is made up of strands of thread. In the finished product, there are cells innumerable, but the beginning of all was in the one cell made up of the two - ovum and pollen (in the plant), or ovum and spermatozoon (in the animal).

Let us consider a cell for a moment - so tiny that it cannot be seen with the naked eye, and yet such possibilities of life bound up within it. Cells may be and are of many different shapes, but the simplest form is round. A limiting membrane called the cell membrane surrounds it. The body of the cell is made up of a jellylike substance called protoplasm, sometimes spoken of as the cell plasm. In the center, or perhaps to one side of the center, is a small area more dense than the rest, which again is most often round but may be of any shape. This is called the nucleus. This nucleus is the vital part of the cell. It is the controlling, active substance.

1 Recently a case study of identical twins was reported, in only one of whom high blood pressure and heart disease was present. - Archives Internal Medicine, December, 1943.

The human body, then, starts as one cell. Roughly estimated, the full-grown body is composed of about one hundred million million cells. These vary a few million million more or less, depending on the size of the individual.

An Interesting Story.

The story of the human body from its beginning to its end is of intense interest. Its history begins with the very inception of the new life, and has been divided by those who have studied it into definite

ALL ABOUT THE BABY

periods. Three of these are before birth. The first period is that of the egg, and lasts two weeks. This egg in the human averages less than one one-hundredth of an inch in diameter, and cannot be seen clearly without the aid of a microscope. In this tiny egg are all the characteristics that will be inherited by the being developing from it. This egg cell divides exactly in half, making two new cells, one half of its nucleus going to form the nucleus of one new cell, and the other half to form the nucleus of the other. The first pair of cells look exactly alike. Each one of the pair soon divides again, and the result is four like cells; then again, and the result is eight.

All the early cells seem to be the same; but as the cells keep dividing and the total number increases, the size and form and appearance of resulting cells gradually vary, and there finally come to be great differences.

The enormous number of cells resulting from the many divisions soon form a mass that is shaped somewhat like a blackberry or a mulberry; but this mass of cells does not enter entirely into the formation of the new body itself.

At the end of two weeks, on one side of this mass, which is now about one fourth the size of a grain of wheat, some of the cells group in such a way as to form the beginning of a specialized portion, and this specialized portion is that which is going to be the new human being. The other cells of the mulberry-like mass surround and protect and feed the new being, just as the greater part of the contents of a hen's egg serves as nourishment for the developing chick. The special group of cells that is forming the new body is called the embryo; and the second period, or the period of the embryo, has now begun. During this second period, the organs of the body begin to be formed. The cells of the embryo keep on rapidly dividing, but now the divisions begin to result in many different kinds of cells, as nerve cells, bone cells, muscle cells, and many others, each cell being specialized for its particular work. The embryo, however, does not yet resemble the human body. In fact, the embryos of all the higher animals look much alike; even that of the chicken in its beginnings looks much like the human body in its earliest stages. When it is about fifty days old, the human embryo begins to look a little like a human being.

The third period begins at the end of the third month of prenatal life. This is called the period of the fetus. The specialization of cells and the formation of organs continue on through this third period until a time comes when the new body can perform its functions sufficiently

ALL ABOUT THE BABY

to live apart from its mother's body; and the child is born. Oh, wonderful, mysterious process, so accurately and unerringly carried on in its complicated unfolding!

Periods of Human Life.

The periods of human life preceding and following birth have been summarized as follows:

1. Period of the egg - the first two weeks.
2. Period of the embryo - to the end of the third month.
3. Period of the fetus - to the time of birth.
4. Period of the newborn - the first two weeks after birth.
5. Period of infancy - from two weeks to one year.
6. Childhood - infancy to fourteen years.
7. Adolescence - fourteen to full maturity (twenty-five to thirty years.)
8. Maturity, or adulthood.
9. Old age.

The Climax of the Story.

Now for a most interesting part of the tale. Just before the dividing cells of the new body begin to specialize, while they are still all alike, some of them are set aside for a special purpose. These never become specialized to make bone, muscle, nerve, or various tissues, as do the other cells; but they are put away, so to speak, and kept in a specially prepared place against that future time in years to come when this body that is now being formed will reproduce itself. These unchanged cells, separated from the original ones before specialization begins to take place, are the germ cells - ova or sperm cells, whichever the case may be - that are to repose in their special niche until such time as they may be considered ready for duty in the continuation of the stream of heredity.

It is interesting to note that these germ cells are like the beginning body cells, and are set apart in this primeval state in order that the ancestral stream may be passed on in an uninterrupted way from generation to generation. And, naturally, the beginning body cells were like the amalgamated germ cells of the two parent bodies from which they sprang, which, in their unjoined state, were like the original body cells from which they were set apart, and so on back through the generations. Or, to look ahead, some one or more of these germ cells we have just spoken of will, in the later life of the individual, when

ALL ABOUT THE BABY

mating takes place, unite with a complementary germ cell. The segmentation of these two form the beginning of a body of another generation, the dividing cells of which will again set aside cells that are a replica of the original; these, in their turn, to repeat the process at maturity in the continuation of reproduction, a never-ending stream of familial characteristics thus being passed on in the racial building.

Food for Thought.

Surely a young man or a young woman contemplating matrimony would do well to consider the family background of the one under consideration as a possible mate. If every young person would but stop to meditate upon the fact that the seal of his marriage, the acme of his earthly joy, his greatest contribution to mankind, may be in the child that is born as a result of this marriage, he would hold the reins of his emotion until such time as it might settle upon one who could bring to his child the heritage, at least in part, that he might desire for it. Marry for love, yes; but guard well the power of love. Control it; be not entirely controlled by it.

There is just one thing that can offset the wrong sort of heredity, and that is a sober, serious, sensible recognition on the part of the individual as to his hereditary shortcomings. This, with right ideals and determination to strengthen weak points, can do much to neutralize the shortcomings of family tendencies. 1

1 "As I read step by step the marvelous story of the creation of a new human life, I felt as if I sat in the darkened projection room of God, watching upon the glowing screen the tracing of His divine finger in the ultimate mystery. Two tiny cells that hold enwrapped within their infinitesimal space the wondrous mechanism of a human body, the destiny of a human soul, are, by the working of a divine law, brought together. They meet, they merge into each other, there is one cell. A new life has begun. A little round, jellylike cell, too small to be seen by the human eye, but impregnated now with the power to grow. It moves, it folds, it breaks into two cells, and they into more, and more, and more; subdividing, multiplying, clinging together, a little mass of rounded cells, all alike.

"And then, wondrous vision I For no cause that can be discovered, these cells, still multiplying, growing ever greater in mass, begin to

ALL ABOUT THE BABY

diverge in form and function, preparing to take up the duties and their assigned posts in human frame and life. What makes the change in them? We do not know, we cannot tell, except that, as it were in this sanctuary of His creative power, God stoops down and whispers to them, saying to these, 'You be the brain;' to those, 'You be the heart to others, 'Make the eye, the ear, the tongue, the hand, the bone and muscle and nerve, the blood and the channels through which it flows.' And yet to some God says, 'You special cells remain unchanged, like your parent cells, that you may carry on to generations yet unthought of the looks and thought and frame and power of these progenitors. You shall be stored in the most holy place of the sanctuary of the body for the perpetuation of My image in the children of men.'" - A. W. Spalding.