

PRE-NATAL CULTURE.

(By Nurse A. E. Chappell.)

PART SECOND.

That this subject should have lain dormant for so long, if there is the great science in it which some believe, may seem strange to some. Yet the same may be said of "wireless telegraphy," electricity, and many other things which science is revealing to us to-day.

Dr. Brittan, who has given much study to these problems of human life, gives the following very reasonable hypothesis as the law or process of embryonic moulding:—"The singular effects produced on the unborn child by the sudden mental emotions of the mother are remarkable examples of a kind of electro-typing on the sensitive forces of living forms. It is doubtless true that the mind's action in such cases may increase or diminish the molecular deposits in the several portions of the system. The precise place which each separate particle assumes in the new organic structure may be determined by the influence of thought or feeling. If, for example, there exists in the mother any unusual tendency of the vital forces to the brain at the critical period, there will be a similar cerebral development and activity in the offspring."

A. E. Newton says: "The electro-typing consists in causing, by means of electrical agency, the deposit of fine particles of metal, as gold, silver, or copper, dissolved in a powerful acid, upon the surface of any article. Gilding, silver-plating, and copper-facing are now executed to a large extent by this curious process. The coating of metal thus deposited becomes exceedingly compact and durable, and may be made of any desirable thickness, proportionate to the time occupied in the process. It is reasonable to suppose that by a somewhat similar process, affected by the vital forces of the mother, and to some extent controlled by her mental operations and emotions, are deposited the molecules of matter which go to form the human embryo in all its various parts."

Darwin had a theory that the cells of the body continually give off great numbers of gemmules, or in other words, the fruit from the cells. These

he believed were thrown off into the blood, and by the blood deposited in the germ-cell of the organism. These gemmules are thus endowed with the power of producing a cell of the same kind, each gemmule reproducing a cell from which it was derived. Thus, the racial poisons, such as alcoholism and venereal diseases, must reproduce the diseased cells from which derived, be it in the brain or any other part of the body. The taint will be in proportion to the taint in the parent cell at the time it is thrown off. Thus, the unfolding of the germ-cell will unfold the diseased conditions which were in the parents at the time those gemmules were thrown off. Science has demonstrated that when we think we use up cells in our brain, and thus attract more nourishment to make more cells to take the place of those used up. The more intense and rapid is the thinking, the greater is the number of cells thus produced, with the correspondingly greater number of gemmules to be finally deposited in the germ-cell, thus causing the basal mental capacity to be greater, though through unfavourable circumstances they may not be utilised.

This brings me to the thought which I am endeavouring to express. If the mother exercises specially any particular part of her brain from which arise certain qualities and line of conduct, during the pre-natal period, according to the similar process of electro-typing which Dr. Brittan suggests, the deposits may be the gemmules which are carried by the blood and deposited in the germ-cell, as Darwin suggests; but is it not reasonable to suppose the different parts of the embryo take up the gemmules deposited in the blood and build them into its corresponding parts to the part from which they have come in the mother, seeing all the material for building its body are derived from the mother's blood, and thus are manufactured in the mother's body; as the faculty to manufacture for its own use is immature and lying dormant until its life in utero is finished. The mother makes the bricks for the building, as it were, and the bricks are deposited in their right place by some process of nature which at present is obscure to our limited intelligence. It may be that the directing intelligence nature uses lie in the two combined cells from which the new life started. The scientific fact that

the elements of all the future children are in the infant at birth, and that all the deed and thought life affects those elements prove there must be an intelligence in those elements which have developed into the germ-cells, too potential and subtle for us to understand with our present limitations. Our limitations, in my opinion, are largely of our own making. Emerson says: "There is one mind common to all, and it is according to the inlet we allow of that mind into ours that we shall be able to understand.

"I am fearfully and wonderfully made;
My frame was not hidden from thee,
When I was made in secret,
And curiously wrought in the lowest
parts of the earth.

Thine eyes did see my imperfect substance,
And in thy book are all my members written,
Which day by day were fashioned,
When as yet there was none of them."

If a gemmule produces a cell like the one from which it came itself, there will be more material from that part of the brain which has been most used during this pre-natal period, thus seeming to point to the probability that the child will be specially gifted in that direction pre-natally, more than either parents or ancestors. Undesirable qualities and characteristics can be swept away in one operation—it seems to me—if this theory is true, by care being taken by the mother during this period to abstain from the undesirable traits, and to persistently exercise the contrary virtue. Thus the weakness of generations could be overcome. In my opinion, there would not be a throw back in that child's children, unless the weakness of past generations were exercised and the contrary virtue not exercised, or in a small degree.

Luther Burbank's assertion backs up this belief: That "acquired characteristics are transmitted to the children"

In fact, what is evolution but a passing on of something better than one's self except potentiality? While Dr. Brittan speaks of the effect of sudden emotion of the mother producing such remarkable results on the unborn child, I am equally convinced that remarkable results are produced by the steady, persistent endeavour of the mother in any direction; even if she does not acquire proficiency herself, yet it has given the capacity to