INFANTILE ATAVISM:

BEING SOME FURTHER NOTES ON DARWINISM IN THE NURSERY.

By LOUIS ROBINSON, M.D.DURH.,

Deputy Medical Officer of the Lewisham Workhouse Infirmary.

It is with the hope that some additional details supplementing my paper on "Darwinism in the Nursery"¹ may prove of interest to the members of the medical profession that I write this article.

By far the greater number of the observations and experiments were carried out at the Lewisham Workhouse Infirmary, and I should like to call attention in passing to the magnificent field for original work of various sorts these institutions offer. In other branches of research of importance to medical and general science I have found the material there afforded of the greatest use, and neither in hospital or private practice could such material have been found or been made available. The long stay of patients in the place, the great variety of cases, both acute and chronic, and lastly the unique and supreme

position of the medical officer—all render possible a course of systematic study which can be carried out equally well under no other conditions. I have found it possible—and to this I owe a great measure of my success—to win the cheerful and intelligent co-operation of both officials and patients, and I owe an especial debt to my staff of nurses, whose painstaking assistance in taking and keeping records of cases I shall ever remember with gratitude.

Unfortunately a parish medical officer is almost invariably an overworked man, and at times, however conscientious he may be, he is obliged to consider which part of his work he can leave undone for the time with least disadvantage to the patients and himself.

This must account for the want of completeness and general fragmentary character in my observations, of which I am only too conscious. I feel that certain doubtful points of my argument should have been cleared up and illustrated by further anatomical and other investigation before the facts and theories advanced in my article were published; but I trust that some of my brethren more favourably situated may be induced to give the needful help in this direction and confirm or correct my statements.

The children whose power of grip I experimented upon were mostly those of young single women, and were born in the lying-in ward of the workhouse. The other children were the inmates of the nursery.

I had often been struck by the great development of the muscles of the shoulder girdle, arm, and forearm in dissecting fetuses, but had never paid special attention to it until I began to observe the various habits of the young of our domestic animals, such as kittens, lambs, kids, foals, and calves, which indicate points in their ancestral history. Young lambs, when at play, will always seek the highest and most precipitous part of the field, thus showing their mountain origin, and young lions are spotted irregularly, in-

dicating that they are descended from the great forest-haunting cats, although they now live in the desert, and when full grown are tawny, like all desert animals. Again, certain distinctive habits in young animals are absolutely essential as means of self-preservation from their earliest days in the feral state; and in the article referred to I laid stress on the extraordinary galloping power of the foal, and the instinct in the half-wild calf to conceal itself. It occurred to me that probably such traits existed in children, and about the same time my attention was drawn to the great power of holding on to the mother or the tree which exists among all young apes. Du Chaillu, Wallace, and others call especial attention to this, and their observations show that were the infant ape to loose its hold in any emergency it would almost certainly perish.

The theory of Darwin that we are descended from a tree-climbing quadrumanous ancestor led me to test the power of grip in infants, for this seemed to be a habit indicating a means of self-preservation in remote ages, which would be most likely to be still evident owing to its supreme importance in the past. The result was that I found that every infant, even those prematurely born, had a very notable grasping power, and that the strongest were able to hang by the hands and support their whole weight for over two minutes and a half. Nearly all the infants experimented on were under a month old, and many of them had not made the acquaintance of the nurse's soap and water before contributing to the advance of anthropological science.

The grasping power of the child had of course been observed long ago, both by medical men and the laity. Hartley uses it to illustrate his interpretation of unconscious reflex action. Of this and other "out of date" reflexes I hope to write further on some future occasion, for they certainly throw a startling light on the past of our race. I have, however, never seen any record of experiments to show

the extent of the power, and I think it will be admitted that the above results (indicating a measure of strength in the newborn child's arms almost proportionately equal to that of a strong adult man) are worthy of note, and are a fit subject of careful inquiry.

I have thought much on the subject, and have conversed with those most likely to know, but have failed to find any present use for this extreme degree of strength in the flexors of the hand and fingers in the babe fresh from the womb.

Botanists and entomologists tell us that the proboscis of the insect and the bill of the humming bird have been developed *pari passu* with, and in consequence of, the elongated tubes of flowers, and that the finding of an insect with an exceptionally developed proboscis indicates to a certainty that in the same habitat will be found a flower tube of corresponding length. How can we apply the principle here?

The correspondence and interdependence of parent and child are to be noted. If the babe shows this projected power of grip, does the parent exhibit any trace of the means of its being able to maintain itself *in situ*? The arboreal ancestor (begging the vexed question for the moment for argument's sake) was hairy as well as quadrumanous, and I think that

¹ *Nineteenth Century*, November, 1891.

my observation on vestigial reflexes indicate that the pre-human offspring was hairy too; but does any hair remain which indicates the natural point of attachment of the young to the parent? The suggestion I am about to put forward I submit with all diffidence, and desire it to be regarded only as a suggestion, but one at the same time worthy the attention of those able to judge of its merits; and therefore I shall not advance any arguments in its support in this stage, but merely leave it to the criticism of my readers. It is to the effect that the axillary and pubic hair, in addition to other well-known functions, is the remains of the "handle" Nature provided for the four hands of our (quasi) arboreal ancestry in early youth.

I should remark that a distinct effort is made by the infants to curl their toes over anything graspable when they are hanging by their hands; and the wide spread and inward bend of the pollex is excellently shown in the first photograph.

In my paper in the *Nineteenth Century* I have attempted to show a reason (beyond the immediate physical cause) that will account for the great development of the head in the fœtus. The size and efficiency of the arms, as has been shown, might have been essential to enable the infant to keep tight hold of the mother when she was too much occupied in climbing to escape a foe to hold her offspring. The size of the head I attribute to the facts that the potential man had already begun to win supremacy over his rivals by mind rather than brute force, and that the perfection of the brain depends more upon its initial degree of development than do the other physical powers. Thus an athlete can double the size of his biceps in three months, but no man by taking thought can add in like manner to his grey brain surface. It was necessary, therefore, in the hard struggle for existence, for the embryo man to be born with plenty of mind material.

This leads to a most important physiological problem. It is said that the peculiarity of the fetal circulation accounts for the greatly increased growth of the head and upper limbs before birth. This is doubtless in a measure true, since an abundant supply of renovated blood is essential to growth; yet to say that this is the reason as well as the cause seems going beyond Nature's warrant, for if we take the case of a young mammal whose hind quarters are of especial and essential use just after birth, such as the foal or bison calf, we find that the fore end is small and light in comparison with the hind legs and the great gluteal muscles of the rump.

When this problem presented itself to me I thought there must be some difference in the fetal circulation of these quadrupeds and of man of which I was ignorant, and I applied to a friend who had won distinction in the Royal Veterinary College before committing myself to any statement. His answer was that, as far as he knew, the same arrangement of blood distribution existed in the embryo foal as in the fœtus of our own species. No means of investigating this matter practically have as yet offered, though I have asked several horse-breeding friends to let me know if they had a fœtus from abortion or accident, that I might (with proper veterinary assistance) carefully examine the ductus

arteriosus and the Eustachian valve, with a view of clearing up the doubt that this remarkable anomaly has raised in my mind. May I ask that any medical man who is so fortunate as to secure an embryo foal will kindly inform me of the fact, if he is unable to settle the difficulty by a careful comparison at first hand?

Another novel point raised is the reason of the flexed state of the thighs in young infants. Upon taking a wider outlook, we see that young chicks, though twisted and cramped in the egg, hold the head straight and extend the legs immediately after being hatched, and that the hoofed quadrupeds are able at once to adopt the attitude of adults without difficulty. This would make it seem as if the intrauterine position might not be the sole and absolute cause. This flexed state of the femoral articulation may indicate a relationship to animals just below us in the scale of Nature whose thighs are habitually bent at an angle with the vertebral axis.

I am not aware that the succeeding observation that during sleep the bird, the quadruped, and man himself in early youth revert to the pre-natal position has been published before. I took great pains to learn what was the position voluntarily adopted by young children during sleep, being

anxious to find out what the pointing of Nature was in this respect, so as to use the knowledge in the treatment of that most intractable state, insomnia.

On several occasions I had all the children over six months and under two years old in the workhouse nursery put to bed naked, so that they might choose the easiest position, unrestrained by clothing, and in nearly every case I found that they slept with the body prone, like so many kittens, and the head turned cheek downwards on the pillow, or else with the body semi-prone and the limbs, with the common exception of one arm, which was put beneath the head, flexed beneath them. On inquiry at the Zoological Gardens I learned that the platform-building apes,

such as Sally the chimpanzee and several young orangs and gorillas, which they had had there, slept in exactly this attitude.

The negroes lay their infants down to sleep prone; and I have no doubt that many a restless night is the result of our civilised method of swathing babies in clothes until they are helpless bundles, and planting them on their backs in their cradles. They protest at the unnatural attitude, and are dandled and fed, hushed with lullabys, and again committed to wind and nightmare on their backs.

In submitting these very incomplete notes I would ask that such points as the comparative size and weights of the different grasping muscles and those not called into play in human or simian infancy might be carefully observed by those who have opportunity, and that any other facts for or against the theories advanced may be stated.

[The photographs from which our illustrations are taken are by Mr. MITCHELL, 137, High Street, Lewisham.]

DR. A. D. WALLER calls our attention to the fact that the date of Waller's first paper on Nerve Degeneration is 1849 (*Phil. Trans. R.S.*), that is, preceding the *Guy's Hospital Reports* for 1850, which we alluded to in our obituary of the late Mr. Wharton Jones, as substantiating his claim to have originated the "Wallerian method of research."