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To the Senate of the University of Glasgow:-

I have the honour to submit to you as my thesis for the degree of Doctor of Medicine the following notes and Observations on Maternal Impressions.

Maternal Impressions may be defined as the influence of the imagination on the female sex, operating on her either before, at the time of conception, or during the early stages of pregnancy, and stamping some peculiar change upon the foetus in utero mental or physical, and which can be noted in the further development of the foetus, in the child, and the grown up individual.

As above defined the influence of the maternal imagination upon the foetus in utero has been generally believed in from the earliest period of which we trace any records. In more modern times scepticism has prevailed in the minds of

some, while others have adhered to the ancient belief.

There is undoubtedly great difficulty in believing that any external influence acting upon the maternal imagination can have any impression upon the foetus in utero. It is difficult to conceive by what route such an influence can pass. On the other hand we have the records of the experience of men who have at least in other matters been good observers to prove that external influences acting upon the maternal imagination have produced marks or other results upon the foetus and seen in the future child.

In discussing a question of this kind we must first take a preliminary view of the great question of inheritance so well worked up by Darwin (1). Like begets like is an ancient aphorism, and there is nothing strange in this, but it would be surprising if it were otherwise. Under the same conditions we might conceive of form structure and mental attributes being inherited through many generations. Yet

inheritance is not always certain: life is not always passed under the same conditions, and these changed conditions and their accumulative action produce changes in the organism, and these changes when once produced are also liable to be inherited. There are a great many inheritable peculiarities mental and physical, physiological and pathological, such as a peculiar lock of hair, gesture, voice, general bearing and peculiar manners, good health, vigour and longevity, also gout, insanity, epilepsy, consumption, asthma, cancer, injuries and mutilations.

Inheritance is therefore variable, and the causes of this variability are the changed conditions, domestication, change of climate, change in the nature of the food, but more so in excess of food, use and disuse of parts, slight changes in treatment long continued. Crossbreeding.

Besides these, Maternal impressions must be considered as one of the causes of the variation of inheritance, but before discussing this point it might be as well to explain another cause of variation. Apart altogether from the influence of the Male element upon the ovum and its development, it also seems to effect the ovarium, which is decidedly apart

of the female.

As regards the ovarium of plants Sachs may be quoted in his recent work on Botany. as follows: "The process of development brought about by fertilization, or the union of the reproductive cells is usually not confined to the resulting embryo, but shows itself also in a variety of changes in the mother plant itself." and he gives various examples. Further on he says "In *Stromelyx* the entire development of the seed and fruit depends on the changes caused in the mother plant by the fertilization of the embryonic vesicles. — In the *Orchidaceae* the action of the pollen tube is visible on the mother plant even before fertilization. Hildebrand has shown that in all orchids which he examined the ovules were not in a condition to be fertilized at the time of pollination and in some (as *Dendrobium nobile*) they have not even begun to be formed. In the *Orchidaceae* the formation of the female cell is therefore a result of pollination: it is determined by the action of the male pollen tube in the tissue of the mother plant." Darwin has also given a good many instances to show this influence of the male element upon the mother form. He says that with plants the ovarium and the coats of the

ovules are obviously parts of the female and he gives evidence to show that these are affected by foreign pollen. "It was observed" he says "as long ago as 1729 that white and blue varieties of the pea when sown near each other, mutually crossed no doubt through the agency of bees, and in the autumn blue and white peas were found within the same pods." It has been conclusively proved since by the experiments of Gartner and J. M. Berkeley that the colour of the stem of the pea is modified when pollen of a differently coloured variety is used. He quotes the case of the tall sugar pea which bears very thin green pods, when fertilized with pollen of the purple-podded pea which has dark purple pods with very thick skin, yielded a pod clouded with purplish red. The colour lies in the outer of the two coats which surround the pea. He then gives another case of similar nature from the genus *Malva*. That the ovarium may be modified by foreign pollen he then proceeds to show. "Galesio" he says "impregnated an orange with pollen from a lemon and the fruit borne on the mother tree had a raised stripe of peel like that of a lemon both in extent and taste, but the pulp was like

that of an orange and included only imperfect seeds. M  
 Naudin further states that he has seen fruit growing on  
*Charadriops humilis* which had been fertilized by M  
 venis with pollen from the Phoenix or date palm. The  
 fruit or drupe thus produced was twice as large as and  
 more elongated than that proper to the *Charadriops*  
 so that it was intermediate in these respects as well as  
 in texture between the fruit of the two parents. These  
 hybridized seeds germinated and produced young  
 plants likewise intermediate in character." He then  
 gives similar cases among the Cucurbitaceae,  
 grapes, maize and apple. Further he says that while  
 foreign pollen may cause "the coats of the seeds and the ovarium  
 or fruit and even the calyx and upper part of the peduncle  
 of the mother plant to be modified" yet he has no reason to  
 believe ~~any~~ that this influence extends any further into the  
 plant. "There is not the least reason to believe" he says  
 "that a branch which has borne seed or fruit directly modified  
 by foreign pollen is itself affected so as subsequently to pro-  
 =duce modified buds: such an occurrence ~~to~~ ~~seep~~ from the  
 temporary connection of the flower with the stem would be



hardly possible.

But he gives cases in support of the belief that a variety when grafted or budded on another variety sometimes affects the whole stock, or at the point of junction gives rise to a bud or graft hybrid which partakes of the characters of both stock and scion, such as when the variegated jasmine is budded on the common kind, the stock sometimes produces buds bearing variegated leaves: this has also been seen in the elder. Some buds of a golden variegated ash, which were inserted into common ashes, all died except one, but the ash stocks were affected, and produced both above and below the points of insertion of the plates of bark bearing the dead buds, shoots which bore variegated leaves. Buds taken from an ash tree with yellow leaves were inserted into common ashes which in consequence were affected and produced the blotched Budal-bane ash.

From these instances in plant life, it is quite evident that the influence of the male element affects not only the ovum, but also the tissues of the mother plant. The influence of grafts on the mother stock seems to be of the same nature. This influence is made more evident

to our senses by crossing with foreign pollen, but by analogy we can conceive of the same influence being exercised on the tissues of the mother plant by pollen from a plant of the same species, and yet not evident to our senses. In the same way a branch upon a tree is influenced by and influences the whole tree, as a graft is influenced by and influences its mother stock.

Then as regards the influence of the male over the ovarium(?) in animals: the following are instances.

A nearly pure but Arabian chestnut mare bore a hybrid to a quagga, she was subsequently sent to Sir Gore Ouseley and produced two colts by a black Arabian horse. These colts were partially dun-coloured and were striped on the legs more plainly than the real hybrid, or even than the quagga. One of the two colts had its neck and some other parts of its body plainly marked with stripes. Stripes on the body, not to mention those <sup>on</sup> of the legs, and the dun-colour are extremely rare with horses of all kinds in Europe, and are unknown in the case of Arabians. But what makes the case still more striking is that the hair of the mane in these colts resembled that of the quagga, being

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short, stiff and upright. Hence there can be no doubt that the quagga-affected the character of the offspring subsequently begot by the black Arabian horse. (Darwin quotes this from Philosophical Transactions 1821)

A sow of the black and white breed (known as Mr Western's breed) became pregnant of a boar of the wild breed, of a deep chestnut colour. The pigs produced were duly mixed, the colour of the boar being in some very predominant. The sow being afterwards put to a boar of the same breed with her own, some of the produce were observed to be stained or marked with the chestnut colour, that prevailed with the former litter, and on a subsequent impregnation the boar being still of the same breed as the sow, some of the litter were also slightly marked with the chestnut colour. (~~Sarvin~~ from Philosophical Transactions 1820) quoted by Harvey (Foetus in Utero) and Sarvin.

Harvey (Foetus in Utero) quotes a case from M<sup>r</sup> Selway who says that in several foals in the Royal Stud at Hampton Court — the dam of these foals were bred from by Colonel the previous year. Again a colt the property of the Earl of Suffolk got by Laurel so resembled another horse "Garral" that it was whispered nay even asserted at Newmarket that he must

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have been got by Camel. It was ascertained by ~~Camel~~ however that the mother of the cott was covered the previous year by Camel.

A pure Aberdeenshire heifer was served with a pure Teeswater bull to whom she had a first-cross calf. The following season the same cow was served with a pure Aberdeenshire bull: the produce was a cross-calf which at two years old had very long horns, the parents both hummel. (McGillivray)

A pure Aberdeenshire cow was served in 1845. with a cross bull - i.e. an animal produced between a first cross cow and a pure Teeswater bull. To this bull she had a cross calf. Next season she was served with a pure Aberdeenshire bull - the calf was quite a cross in shape and colour. (McGillivray).

The Rev<sup>d</sup>. Charles McCombie communicated to Mr Harvey the following case: Mrs - a neighbour of Mr McCombie was twice married and had issue by both husbands. The children of the first marriage were five in number. Of the second three. One of these three a daughter, bears an unmistakable resemblance to her mother's first husband. What makes the likeness the more discernible is that there was the most marked difference in their features and

general appearance between the two husbands.

Professor W. Simpson communicated to Dr. Harvey the following case: A young woman born of white parents, but whose mother succumbed before her marriage had a bastard child (a mulatto) by a negro man-servant in Edinburgh. She presented distinct traces of the negro. Dr. Simpson had no recent opportunities of satisfying himself as to the precise extent to which the negro character prevails in her features, but he recollects being struck with the resemblance and noticed particularly that the hair had the qualities characteristic of the negro.

Dr. Harvey quotes other cases of similar nature from the "Physiology of breeding" by Mr. Oulton, and Edwinton in his Humours physiology also gives a case: A lady aged 19 was married to a gentleman of consumptive tendency aged 21. At the end of a year she bore him a son. The child died of hydrocephalus aged 2: the husband the year following leaving the lady a widow at 22. At 26 she married again and had issue six children - the last a boy. As he grew up it was remarked by all the friends of the first husband and admitted by the mother herself that her sixth child was more like her first husband than his own father.

however though born of robust parents without any con-  
-sive tendency, he is delicate, and subject to tracheal irritation  
and chest attacks, but he is now grown up, living and in  
good health.

It is manifestly very difficult to account for these cases. Dr  
Harvey says that these facts were well known to our great breeders  
of cattle, dog farmers &c and also to the Arabians. Darwin  
mentions in a foot note that a French poet Jacques Savary who  
wrote in 1665 our dogs was also aware of it. Becker (1703) seems  
also to have been aware of it, and accounted for it as being  
due to Maternal Impression. "When a mare he says" had had  
a male by one dog and afterwards a foal by a horse, there are  
evidently marks in the foal, of the mother having retained some  
idea of her former partner - the dog." Haller was also  
acquainted with a similar case, but accounts for it by a per-  
manent impression made by the semen of the male on the  
genitals and more particularly upon the ova of the female.

This theory was adopted by Dr Keil, Mr Mayo and professor  
Bernard in their works on physiology. It has been compared  
with the case of birds where a single intercourse is known to  
impregnate many eggs which are laid successively after it.

In the aphid again the production of young by the female goes on for several generations without any sexual intercourse after that which gave rise to the first. Sir Everard Home in discussing the cases reported in the Philosophical Transactions for 1821 believed them to be due to an abiding influence exerted by the male on the imagination of the female and operating on her mind at the time of her connection subsequently with other males and perhaps during her pregnancy. He further seems to have satisfied himself of the existence of nerves in the placenta, and that there was a nervous connection between mother and foetus through the umbilical cord. This discovery has not been corroborated by succeeding observers, and Vieussens has positively denied it. Dr. Alexander Harvey of Aberdeen adopted the theory of Mr James McEldray a Veterinary Surgeon of Perth quoted from the Aberdeen Journal of March 21 and 28. 1849. This theory Dr. Harvey has named that of Fœtal Inoculation. He believes that the effect is due first to the influence of the male on the ovum which in consequence of the subsequent close attachment and fully communicating bloodvessels between the modified embryo and the mother, inoculates the constitution of the mother with the qualities

of the male and so on a subsequent impregnation by another male the offspring resembles the first male and not its real parent. He even goes further and says that it is conceivable that by each successive impregnation effected by him, that influence may be increased, and if so the younger children begotten by him, rather than the elder might be expected *ex teris partibus* to bear their father's image, and as regards the mother he suggests the question as to whether there is not something in the popular notion that in the course of years a woman comes to resemble her husband and that not merely in respect of temper, disposition or habits of thought, but in bodily appearance which may be referable to this influence exerted by the husband through the medium of the several foetuses in utero on her constitution

Darwin on the other hand considers it a most improbable hypothesis that the mere blood of one individual should affect the reproductive organs of another individual in such a manner as to modify the subsequent offspring. The analogy he says from the direct action of foreign pollen on the ovarium and seed coats of the mother plant strongly supports the belief that the male element acts directly on the reproductive organs of the female and not through the intervention of the crossed



embryo. But at the same time while having a preference for this explanation he says if the influence be admitted as passing through the foetus the case would become one of graft-hybridism for the fertilized embryo and the mother plant must be looked upon as distinct individuals. The only difficulty here seems to be that in plants the ovum or seed is included in the ovary and therefore the action of the pollen may affect both, but it is difficult to account for the male element affecting the ovarium of animals when impregnation is supposed to take place most frequently in the oviduct (Fallopian tube) and only occasionally in the ovary itself.

Dr. Harvey in proof of his theory quotes cases of disease which he considers as being from father to embryo, and from embryo to mother, and more particularly scrofula and syphilis, but he considers that syphilis specially gives the necessary proof. He quotes Dr. Ramsbotham in Medical Gazette May 23. 1835. "It is a generally received opinion I believe that syphilis in its secondary stage is not communicable directly to either sex from the other - that the disease is not propagated unless there exist an open chancre: and this accords with my observation. But it appears to me probable that if a previously

healthy woman conceive of an ovum tainted by syphilitic virus derived from its father, her system may become inoculated during the progress of gestation, in consequence of the close vascular connection existing between it and herself: for it has fallen to my lot to see more than one case in which a young woman united to a man labouring under obstinate secondary symptoms remained healthy for some months after marriage, but became the subject of the same disease in its secondary form soon after impregnation had taken place: and I have considered that in such a case the mother derived the disease not directly from the father, but from the affected infant which she carried in her womb."

In 1837 Abraham Colles of Dublin announced to the profession a fact he had long noticed, but could not explain viz: that when a mother acquires syphilis by blood contagion from the foetus, she thereby gains an immunity and does not suffer herself from any severe form of the disease: indeed she may be without any obvious venereal symptoms. He further says that he has never seen or heard of a single instance <sup>in</sup> which a syphilitic infant (although its mouth be ulcerated) suckled by its own mother had produced ulceration

An Exposition on the signs and symptoms of pregnancy &  
W. J. Montgomery: Second edition London 1856.  
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Gaz: des Hôpitaux M<sup>o</sup> 6. 1841.

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of her breasts; whereas very few instances have occurred where a syphilitic infant had not infected a strange hired wet-nurse and who had been previously in good health. This shows most decidedly that the mother is protected from syphilitic infection. Jonathan Hutchinson has termed this Colles's law.

Dr. Montgomery of Dublin in 1837 wrote "If it possible that a morbid taint such as that of syphilis for instance having been once communicated to the system of the female may long linger there and influencing several successive conceptions when impregnation has been effected by a perfectly healthy man and the system of the mother appearing to be at the time, and for a considerable period previously quite free from the disease?" His reply is "My belief is certainly in favour of the affirmative" and writing in 1856 he says "further experience and observation have I think shown to be just what I could then only venture to say I believed to be likely." Dr. Montgomery quotes the following case from M. Vidal. "a woman whose husband was affected with constitutional syphilis gave birth to a child which

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in two months showed symptoms of that disease of which it died. The woman never had any appearance of syphilitic affection, not even to soil her linen. Her husband died, and after remaining sometime a widow she married a healthy man, and about 30 months afterwards, being four years after the former birth she bore a child which in two months presented the same form of syphilitic eruption which had appeared on the former child."

\* Dr. Montgomery has more to say: - "Before leaving this subject" he says "I wish to notice a fact, the observation of which I thought was original with me; but I now find it was made long ago by others. It may be thus stated: A woman is married to a man who has latent constitutional syphilis, by which she is infected, but will show no symptom of the contamination until she conceives and <sup>perhaps</sup> then miscarries, and then the taint is manifested by the development of secondary symptoms in the course of a few weeks, as if the infection was at first communicated and confined to the product of the ovary, and the general system became thence contaminated or perhaps another explanation may equally apply, and we may suppose that the new condition and altered action

of the generative apparatus had the power of rearing up and rendering active the latent poison lurking and dormant in the woman's system - as we see occasionally happen in patients constitutionally disposed to phthisis. Whichever of these explanations may be nearest the truth there can be no doubt of the frequent occurrence of the fact.

Dr. Harvey quotes Mr. Reid, Dr. Carpenter and Dr. J. G. Smith as follows:- Mr. Reid says "so long as a diseased father is under the influence of constitutional symptoms of syphilis, the germ which is by him conveyed into the uterus carries along with it the syphilitic diathesis. . . . There is no such thing as an infection of the child by the mother, she having been contaminated by the father: but the husband procreates an infected child, which may then propagate the secondary poison to the mother. - for where there are no children the mother does not suffer."

Dr. Carpenter says against the inoculation theory: "This idea is borne out by a great number of important facts, and it serves to explain the circumstance well known to practitioners that secondary syphilis will often appear

in a female during gestation or after parturition who has never had primary symptoms, whilst the father of the child shows no recent syphilitic disorder.

D. Tyler Smith says "that the most common mode in which women become affected with syphilitic uterine disorder is that in which the foetus is the medium of communication, and further, he had observed in such cases that at each pregnancy a fresh dose of the syphilitic poison is imparted to the mother unless in the meantime the husband has been the subject of antisyphilitic treatment.

Jonathan Hutchinson in the Medical Times and Gazette 1856/7 published a paper on this subject in which he gives a series of cases to show that a pregnant woman may become infected through a syphilitic foetus, that is to say without any primary chancre. This infection he says had been hitherto supposed to be due to the direct contagion of secondary syphilis. Further that this form of syphilis is much milder than chancre syphilis, so mild indeed as to be without any evident symptoms other than the protection it affords to the mother when suckling her syphilitic child. He compares it to the milder form of



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small pus which is communicated by inoculation, and the more serious disease when transmitted aërially. In 1876 in the same Journal he had another paper on the same subject. He corroborates Colles's law, and considers the protection due to a latent form of syphilis. As regards a woman who has given birth to a syphilitic child, but has never exhibited any symptoms herself, should she afterwards get married to a husband quite free of syphilis and have children, the question as to whether these would exhibit syphilitic symptoms he confesses he cannot answer without more proof. In his more recent work on syphilis 1887 he says that it is obviously possible that the child would be syphilitic but no facts have as yet proved it.

All the authors as given above do not go the whole way to prove N. Karswig's theory. S. Karmolothorn speaks only of infection of the mother through the foetus and says nothing of subsequent children by a healthy husband. Colles's law goes no further. The same is to be said of the evidence of Ricard, Carpenter, and Tyler Smith. Jonathan Hutchinson considers it possible but not proven. The only complete evidence is that of Montgomery and the

case he quotes from M. Vidal. Alfred Cooper in his recent work on Syphilis and pseudo-syphilis seems also to be in favour of Dr. Hanvey's theory.

There is one most important authority who argues against this view. R. W. Taylor, New York. (Bumstead and Taylor), does not believe that the disease can be transmitted from the foetus to the mother, and he quotes in his favour Karsowitz, Bärensprung and Pick. He says that the disease may be transmitted from the mother to the ovum, and from the father to the ovum by fertilization, but not otherwise. He denies that syphilis can be conveyed through the utero-placental circulation, which of course means that it cannot pass either from the foetus to the mother, or from the mother to the foetus. Experiments he says have conclusively proved that the essential vehicles of the specific virus are cells or albuminoid molecules derived from an active syphilitic lesion, but after fecundation the embryo is not supplied with cells of any kind but simply with serum. He believes that there are many cases of women who have given birth to syphilitic children, and yet they themselves

remain free of syphilis, because the disease was acquired by the children direct from the father. He admits however that the opposite view, viz that syphilis can be conveyed through the utero-placental circulation from the foetus to the mother is more generally believed in. As regards the transmission of syphilis from mother to foetus the general <sup>belief</sup> ~~belief~~ is that it can be communicated provided she be inoculated with the syphilitic virus in sufficient time before confinement <sup>as well</sup> to allow of transmission. As regards Colles' law he says that the escape of the mother is due to some occult indiscernible change in her system.

It has always been admitted that there is a communication between mother and foetus, or otherwise the various processes of nutrition of the foetus could not be carried on. As to whether there was any return of material from foetus to mother was not clearly made out until the experiments of H. J. Faroy were published in the Lancet in 1858. Previous to this however there had been some negative experiments of Magendie and Willems of Liverpool and Alison in his *Outlines of Physiology* founding upon this

said that it would seem that the transmission of fluids is almost entirely from the mother to the foetus. The experiments of W. J. Savary were upon animals (dogs and cats) the poison he used was strychnine dissolved in acetic acid and water, <sup>(20m - grs)</sup> and the reason of this selection was its capability of ready absorption, and its physiological action obvious and unmistakable. A pregnant animal was placed under chloroform. The abdomen was opened in the median line and the uterus was partially drawn out. The uterus was then carefully divided over a foetus. The amnion was punctured, and the foetus lively and vigorous was allowed to escape. It was received upon a napkin and supported so as to avoid stretching and breaking the cord. The abdominal wall of the foetus was punctured with the point of a syringe and half a grain injected. No fluid escaped upon withdrawal of the syringe. In another foetus it was injected into the thorax. The foetus was then returned to the abdomen, and the wound closed with sutures. In about nine minutes slight spasms appeared <sup>in the mother</sup> gradually increasing in intensity for 18 minutes. in 28 minutes the dog was dead. Five minutes after death the abdomen

was exposed the two which had received the strychnia were dead, the other two were still alive and vigorous. In some other cases the foetuses after being injected were not returned into the abdomen. Five foetuses were removed: four of which are fairly developed and very vigorous were injected with 5m. of the solution. Immediately after the injection decided tetanic spasms appeared in all, but each survived for sometime after. They remained connected with the mother only by the umbilical cord. At the end of 15 minutes decided tetanic spasms appeared in the mother and she died in three or four minutes more. In another case five foetuses were removed and placed in warm water at 100°. One after the other was injected with varying quantities of the solution, 20. 25. 30 and even 40 m. After five or six minutes ligatures were placed upon each cord and then divided upon the foetal side. They all exhibited tetanic spasms which continued though feebly after division of the cord. The mother breathed placidly for 30 minutes after the first injection and for 15 minutes after the last foetus had been removed. Slight twitchings then became

visible: they became more and more marked and passed at length into a decided spasm.

These experiments by Savory show undoubtedly that there is a transmission of material between foetus and mother, and that through the umbilical cord and placenta. But of course it cannot be assumed that because strychnia can pass in this way that syphilis can also pass. The strychnia will probably be conveyed from foetus to mother dissolved in blood serum: the question then arises what effect would poisons not soluble in that media have upon the mother if administered in the same way. This is a question still to be answered, but it cannot be expected that the transmission of syphilis can be accounted for in the same way as strychnia. Savory notes in the above experiments that <sup>with</sup> the mother ~~was~~ profoundly under chloroform, the foetuses when exposed were active and lively.

As introductory to the study of Maternal Impressions the influence of the male over the female by fruitful sexual intercourse has now been discussed. In vegetable life the male influence has been shown to extend to parts which are recognised as being part of the mother plant. Darwin says that "if we could imagine the same flower to yield seeds during successive years then it would not be very surprising that a flower of which the ovarium had been modified by foreign pollen should next year produce when self fertilized offspring modified by the previous male influence." But as this is not the case we cannot expect "from the temporary connection of the flower with the stem" that this influence would extend to the whole plant. It is this view of the matter which Harvey takes up as applied to animals, but extending from the embryo, and influencing not only the ovarium but the entire constitution of the mother and so profoundly as to affect subsequent offspring. Darwin however believes that the male influence

acts not through the embryo, but directly upon the female reproductive organs as is seen in the Oribidae in which the formation of the female cell is the result of pollination. In the same way it might be conceived of ophthalmia being communicated to the female directly by tainted spermatozoa, by simple absorption from the genital passages. On the other hand if it is admitted that this influence does pass through the embryo before affecting the maternal tissues it can be very well compared to that of graft-hybridism, as is seen when the variegated jasmine is budded on the common jasmine.

In dealing with this subject of Maternal Impressions it will be necessary to exclude cases which can be accounted for in the above way. All the more so as such cases have been accounted for by writers as being due to Maternal Influence.



It has always been admitted that injury to or disease in the mother can have a most important influence upon the development of the foetus in utero. Yet it is wonderful what serious accidents can occur to a mother, and yet proceed to full term and give birth to a healthy child. Mental perturbation can have most serious effects upon the maternal organism, and thereby react upon the foetus in utero so as to prevent its perfect development or even cause its death. There are numerous cases on record of death of foetus following a fright to the mother. Also a child has died immediately after being suckled by its mother who had previously had a fit of bad temper. This undoubtedly shows that mental emotion has an influence upon the blood, as otherwise how could a person reach the foetus in utero or the mammary glands. This is a question which cannot be answered with our present knowledge. This form of maternal Impression has never been denied: the effects produced here are however General and not ~~special~~ particular

It has been noted however that Mental Impressions in the individual have been followed by particular effects: Dr. Carpenter says the flow of saliva may be occasioned in a hungry man by the sight, smell, or even thought of food, and it has been ascertained by experiments on dogs that a flow of gastric juice takes place in their stomachs, when after long fasting attractive food is placed before them. Also the free secretion of milk is producible in a nursing mother by the sight, the cry, or even by the thought of her infant. The power of mental impression is also seen in squirrels labour and squirrels pregnancy. Dr. Carpenter has even given stranger cases, such as when a woman seeing what she supposed a child's fingers being hurt, experienced great pain in her own fingers, they became swollen and proceeded to suppuration. On an incision being made a large quantity of pus was evacuated. Numerous cases have also been reported where persons under the influence of great anxiety fear or terror have had their hair turned white in a single night.

Maternal impressions may now be considered as one among many of the causes of the variation of Inheritance. Darwin has clearly pointed out that no matter how much one individual may resemble another there are always differences however slight these may be, and further that the recognition of these differences extends to all organic beings. He gives instances of the Laplanders and the knowledge they have of every individual reindeer in their possession, and the recognition of individual sheep by shepherds. Also that each ant can recognise its fellow of the same community. There is therefore a vast range in variability and probably the causes are as numerous. Mutation has already been made of some of the causes of variability, but Darwin considers that besides these there are a great many unknown causes. Changes and even slight changes in the conditions of life are often sufficient to cause variability. They act upon the mature organism, in the embryo and in both sexual elements before impregnation has been effected. Further he says that the less close similarity of the successive children

of the same family in comparison with human twins which often resemble each other in external appearance mental disposition and constitution in so extraordinary a manner apparently proves that the state of the parents at the exact period of conception, or the nature of the subsequent embryonic development, has a direct and powerful influence on the character of the offspring. He believes that each modification, no matter how slight, must have its own distinct cause although the precise relation between cause and effect can seldom be traced. He gives a case. Two girls born as twins and in all respects extremely alike had their little fingers in both hands crooked, and in both children the second bicuspids in the upper jaw of the second dentition was displaced: for these teeth instead of standing in a line with the others, grew from the roof of the mouth behind the first bicuspids. Neither the parents nor any other members of the family had exhibited any similar peculiarity. Now as both these children were affected in exactly the same manner by both deviations of structure the idea of accident is at once excluded, and we are

compelled to admit that there must have existed some precise and sufficient cause which if it had occurred a hundred times would have affected a hundred children

Sanvier, while admitting all this does not admit that Maternal Impressions can have any influence upon the foetus in utero. He says that Dr. Wm Hunter in the last century told his father that during many years every woman in a large London lying-in-hospital was asked before her confinement whether anything had specially affected her mind and the answer was written down, and it so happened that in no one instance could a coincidence be detected between the woman's answer and any abnormal structure, but when she knew the nature of the structure she frequently suggested some fresh cause

The reply to this simply is that half a dozen cases which are in favor of Maternal Impressions are of more value as evidence than two or three thousand cases which are negative

Maternal impressions have been believed in from the very earliest time. The case recorded in Genesis is the first on record. Among the ancient Greeks the belief is mentioned in the works of Hippocrates, Hesiod and Heliodorus. Among the Romans Gellius, Terentius, Pliny and Oppian. In the Middle Ages Albertus Magnus and others mixed it up with astrology. Thomas Aquinas, Roger Bacon, Ambrose Pare, Paracelsus and Cordan all believed in it. In 1608 Francis of Rouvain published his treatise on the powers of the imagination, but he divested the subject of all astrology. In the beginning of the 18<sup>th</sup> Century Antagonists to this belief appear. John Astruc was among the first of the unbelievers, but Boerhaave and Van Swieten were in its favour. Daniel Turner in a Treatise of diseases incident to the Skin gives full value to the force of the imagination in pregnant women as a cause of marks in the child. His views on this subject were attacked anonymously by Dr James Blondel who argues that any such effect of the imagination upon the foetus in utero is against reason anatomy and experience, and characterises it as a vulgar prejudice. Blondel admits that he is alone in his views on this question. In France M Marcot in

1716 also attacked the views of the Imaginativists as Blundell calls them followed by Buffon, and also by Haller in his great work on physiology. The influence of these weighty authorities completely changed the professional view on this matter. In 1826 Sir Everard Home brought forward this question and brought cases to show that it did lead to malformation of the foetus in utero. In 1827 in his Croonian Lecture his subject was "On the Existence of nerves in the placenta" in which he accounted for Maternal Impressions and their influence on the foetus by ~~near~~ direct nervous connection. Since his time some authorities have been against it, and some for it: Muller and Allen Thomson are against it. Rokitchinsky, Montgomery and Fodgey Barker are in favor of it. From cases which are recorded from time to time as they occur in the various Medical Journals it would seem as if our modern unbelief in the influence of Maternal Impressions upon the Foetus in Utero was dying out and the old faith coming back in full force.

The following is the first case of maternal impressions on record, and as it is very differently interpreted it may be as well to transcribe the whole.

Genesis xxx. 31. And he (Laban) said, What shall I give thee? And Jacob said, Thou shalt not give me anything: if thou wilt do this thing for me, I will again feed and keep thy flock. (32) I will pass through all thy flock today, removing from thence all the speckled and spotted cattle, and all the brown cattle among the sheep, and the spotted and speckled among the goats: and of such shall be my hire (33) So shall my righteousness answer for me in time to come, when it shall come for my hire before thy face; every one that is not speckled and spotted among the goats, and brown among the sheep, that shall be counted stolen with me. (34) And Laban said, Behold I would it might be according to thy word. (35) And he removed that day the he-goats that were ringstraked and spotted, and all the she-goats that were speckled and spotted, and every one that had some white in it, and all the brown among the sheep, and gave them into the hands of his sons. (36) And he set three days journey betwixt himself and Jacob: and



Jacob fed the rest of Laban's flocks (37) And Jacob took him rods of green poplar, and of the hazel and chestnut tree; and pilled white streaks in them, and made the white appear which was in the rods. (38) And he set the rods which he had pilled before the flocks in the gutters in the watering troughs when the flocks came to drink, that they should conceive when they came to drink. (39) And the flocks conceived before the rods, and brought forth cattle ringstraked, specked, and spotted. (40) And Jacob did separate the lambs, and set the faces of the flocks toward the ring-straked, and all the brown in the flock of Laban; and he put his own flocks by themselves, and put them not with Laban's cattle. (41) And it came to pass whenever the stronger cattle did conceive, that Jacob laid the rods before the eyes of the cattle in the gutters, that they might conceive among the rods (42) But when the cattle were feeble, he put them not in: so the feebler were Laban's and the stronger Jacob's.

~~(43)~~ Then in the following chapter (xxxix) he explains to Rachel and Leah that he intends to return to the land of his fathers and complains that Laban their father had used him unjustly and he goes on to say verse 7. And your father

hath deceived me, and changed my wages ten times: but God  
 suffered him not to hurt me. (8) If he said thus, The speckled  
 shall be thy wages; then all the cattle bear speckled: and if  
 he said thus, The ungoathered shall be thy hire; then bare all  
 the cattle ungoathered. (9) Thus God hath taken away the cattle  
 of your father and given them to me. (10) And it came to  
 pass at the time <sup>that</sup> the cattle conceived, that I lifted up mine  
 eyes and saw in a dream, and behold the rams which  
 leaped upon the cattle were ungoathered, speckled and grided.  
 (11) And the angel of God spake unto me in a dream saying  
 Jacob: And I said, Here am I. (12) And he said, Lift up  
 now thine eyes, and see, all the rams which leap upon the  
 cattle are ungoathered, speckled and grided: for I have seen  
 all that Laban doeth unto thee.

To the imaginationists the above story can only have  
 one meaning. Blondel however gives many reasons against  
 it having anything to do with maternal imagination.  
 Such as: Jacob's motive in setting up the rods unknown,  
 that the effect was miraculous: that the true explanation  
 is given in the 31<sup>st</sup> chapter in Jacob's dream where the  
 rams were ungoathered: that the placing of the rods

was Jacob's own invention, and while he may have thought the rods had a potent effect in producing ringstraked cattle it was really due to inheritance from their male progenitors. This last view is the one taken up by Dr. Allen Thomson.

The ancient view however is one which can be traced to modern times, and instances of similar nature produced of comparatively recent date. Galen says that the ancient Greeks and Romans in order to have beautiful children took special care that the mothers should behold only beautiful objects fitted to excite the most pleasing and delightful mental images and he gives a case in point: "I learned" he says "from an ancient writing that a certain person deformed but wealthy desirous to beget a well-formed infant, caused to be delineated on a board the figure of a comely child on which he commanded his wife to gaze; and so steadfastly did she fix, not only her eyes, but I may say her very soul, on the ornaments of this figure, that she gave birth to an infant which resembled not the father, but the painting

Case 2

entirely, her vision having in my opinion, transmitted the impressions of the latter. Adorns in his translation of Paulus Aegineta gives Serenus as a believer, and says further traces of this opinion is found in Hesiod in Oppian and Heliodorus. The sports with the view of securing a well formed and robust offspring caused their pregnant women to gaze on excellent paintings or figures as Castor and Pollux. In the Ethiopis of Heliodorus there is the story of the white daughter of the black King and queen this being said to be due to the influence of a figure of Andromeda on which the mother was in the habit of gazing. Henry accounts for the resemblance of children to their parents as being due simply to a strong mental impression. He says (H.N. Book VII #10) "These strong features of resemblance proceed no doubt from the imagination of the parents over which we may reasonably believe that many causal circumstances have a very powerful influence, such for instance as the action of the eye, the ear or the memory or impressions received at the moment of conception. A

thought even momentarily passing through the mind of either of the parents, may be supposed to produce a resemblance to one of them separately or else to the two combined. Hence it is that the varieties are much more numerous in the appearance of man than in that of other animals: seeing that in the former the rapidity of the ideas, the quickness of the perception, and the varied powers of the intellect, tend to impress upon the features peculiar and diversified marks: while in the case of the other animals the mind is immovable and just the same in each and all individuals of the same species. Coming to more modern times the following case is from Dr Harveij Poetus in utero & communicated to him by Mr Robert M Erskine Surgeon:- "A young married woman residing in Aberdeen between whom and a young man a strong attachment and a matrimonial engagement had long existed, but who were never married and never had sexual intercourse together, gave birth to a child, which bore so strong a

Case 3

resemblance in its features to the woman's just before  
 as to attract the notice of herself and many others of  
 the acquaintance of the parties." This case would  
 give some support to Plouc's view that the resemb-  
 -lance of children to their parents is due to mental  
 Impression, whereas the general view is that such  
 resemblance is simply due to Inheritance. But may  
 not both act in producing the same result where  
 mental impression and inheritance coincide, but  
 diverge where mental impression is in one direction  
 and inheritance in another.

The following are cases from various authorities:-  
 Elliotson quotes a case from the Medical Times Feb'y  
 29. 1840. Maria Foster of Minchinhampton, Gloucestershire  
 aged six years met with an accident, a broad  
 wheeled wagon having passed over her arm which  
 so much mutilated it as to require immediate  
 amputation. Mary Bunkerworth (who was about  
 two months advanced in pregnancy) took the  
 child to the hospital and was present at the  
 operation for the removal of the arm.

Case 4

page 25.

Case 5

full time of utero-gestation she was delivered of a boy with the left hand and wrist off just above the pronator quadratus muscle. When her child was about fourteen months old he was suddenly shown to Maria Weston of Haverthorp who was then pregnant and about six weeks advanced. At the sight of the child's arm (to use her own expression) she was sick and faintish and continued ill for one hour. At the end of nine months of pregnancy she was delivered of a girl with the left hand and arm deficient from about the insertion of the deltoid muscle. The arms of the two later children which I saw presented exactly the appearance as if they had been amputated. I took the above from the statements of the two mothers (Mary Brinkworth and Maria Weston) of the two children at the dispensary June 4<sup>th</sup> 1839."

Case 6

D. Montgomery of Dublin gives the following case:-  
 A lady pregnant for the first time to whom I recommended frequent exercise in the open air declined going out as often as was thought necessary, assigning as her reason, that she was



page 26.

afraid of a man, whose appearance had greatly shocked and disgusted her: he used to crawl along the flag-way on his hands and knees with his feet turned up behind him which latter were malformed and imperfect appearing as if they had been cut off at the instep - and he exhibited them thus and uncovered in order to excite commiseration. I afterwards attended this lady in her lying-in: and her child which was born a month before its time and lived but a few minutes, although in every other respect perfect had the feet malformed and defective precisely in the same way as those of the cripple who had alarmed her and whom I had often seen

Case 7

D. Montgomery gives a more recent case in his own experience: - Mrs M the wife of a clergyman came to town for her confinement, and a lady who was with her told me that she had been very uneasy in her mind from an apprehension that her child would be born with a deformed hand: her anxiety had been induced by the following occurrence.

The mistress of a school which she frequently visited had been delivered of a child with a deformed hand: and as M<sup>rs</sup> N was known to be, at all times very nervous and easily alarmed, and was then a short time pregnant, great pains were taken to prevent her seeing the child, except with such precaution as would preclude her observing the hand: it happened however one day that she walked unexpectedly into the room where it lay asleep, and sat down by the cradle to look at the child, which at the moment happened unfortunately to have the deformed hand fully exposed to view: she felt greatly shocked and often afterwards alluded to what she had seen, and expressed her conviction that her child would be born with a similar deformity. Very soon after her delivery she expressed an anxious wish to see her infant which was brought to her wrapped up in a flannel in the usual way: she instantly drew out the child's arm and exclaimed with a look and tone of horror "Oh the dreadful hand" and then it certainly was with exactly the same deformity as that which had excited her disgust and terror

Montgomery page 27.

several months before. The deformity consisted in the absence of one finger, and the complete union of the middle and third fingers, the united extremities of which were covered by one nail, presenting a very disagreeable appearance indeed.

Case 8

\* He also gives a case from the lower animals: Dr Nicolls of Kingford communicated to him the following case which occurred under his own observation "Mr H of Hillashree had a remarkably large cow which he sent to a very large bull belonging to the postmaster of the village; there was a small Kerry cow in the yard, whom the cow was served, and which she went to lick after the bull left her: when this large cow served by a large bull calved, the calf in extent and size took after the Kerry cow, which in colour differed materially from the down and sire of the calf."

Case 9

The following cases are quoted from Dr Haivers's *Foetus in utero* &c: A black polled [Angus] cow, belonging to Mr Mustard, a farmer in, Perthshire, came into season while pasturing in a field bounded by that of a neighbouring farmer. Out of this last there jumped into the other field an ox of a white colour with black spots and

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horned, which went with the cow till she was brought to the bull, — an animal of the same colour and breed as herself. Mr Mustard had not a horned animal in his possession, nor any with the least white on it: and yet the produce of this (black and polled) cow and bull was a black-and-white calf with horns.

Case 10 Last year (1829) twenty cows of the black polled Angus breed — belonging to Mr William McCombie in this county, and whose stock is perhaps the finest in the kingdom, — produced as many calves, all of them black and polled, except one single calf, which was yellow and white spotted. Mr McCombie had as usual with him, taken the precaution of castrating the cows, both before and during their pregnancy, to mix with none save perfectly black cattle, except in respect of the mother of this calf. This cow had unwittingly been put to an out-farm, to be starved in order to fit her for the bull. There, for a considerable period prior to her being served with the bull, she had grazed with a large yellow and white spotted ox: of this ox the calf she subsequently bore was the very picture, — the likeness however extending no

further than the colour, and the calf still retaining the shape and configuration of its parents, which were both of the same breed and colour.

Case II

Out of a large herd of cows, of the pure Fenwater breed, all of them of the brown or warm colour (belonging to Mr Cruikshank, Pittyton, near Aberdeen) there is every year dropt one, or at most two, white calves: these, in order to prevent the introduction of this colour among the cattle, are invariably sold, and sent away. Last year however, concurrently with the whitewashing of all the farm steadings, the very large number of twelve white calves were produced. And the like occurrence happened last year also, in the herd of an extensive breeder of the same kind of stock, in Yorkshire, in connection with the like process of whitewashing, — this process having in both cases, been very extensively carried out before the breeding season began, with the view of preventing the breaking out of the pleuro-pneumonia, then epidemic in the neighbourhood and very destructive.

Case III

At the time when a stallion was about to cover a mare, the stallion's pale colour was objected to, whereupon

the groom, knowing the effect of colour upon horses' imagi-  
-ations, presented before the stallion a mare, of a pleasing  
colour, which had the desired effect of determining a  
dark colour in the offspring. This is said to have been  
repeated with success in the same horse more than once.

Case 13

I was told (Mr M'Combie writes me) by an old  
servant of mine, Morice Smith, that when he was a  
servant in the parish of Glas (Sturdenshire), a black  
bull served a black cow at the time when a white mare  
passed them, and that the produce was twin white  
calves. There were no white cattle upon the farm where  
this occurrence happened.

In some of the above case the mental Impression was  
experienced at the time of conception, some after that  
date, but during pregnancy, while ~~some~~ in one especially  
(see page 40. the case communicated by R. M Brooke) the  
impression was received long before pregnancy. The

following case is from the transactions of the Gynecological  
Society of America 1886 vol 11 by Fordyce Barker of New  
York in which there was about four years between the  
Mental Impression and the birth of the child. He

Case 14



case " In February 1859 I was requested by a well-known physician of this city to visit with him his niece, a young lady, eighteen years of age and an only child. She had been very peculiarly insane for nine weeks and had been visited by two prominent alienists, Dr Benjamin Ogden and Dr Siden Brown, who had suggested that her mental condition might possibly be due to some uterine trouble.

Previous to this illness she had been always of a bright, happy temperament, fond of study and reading, and was regarded by her teachers as unusually clever in her studies, and as possessing quite a remarkable talent for music.

The history given me was this; during the preceding Christmas holidays she was taken for the first time to the theatre, and witnessed the play of "Our American Cousin" which was then ~~at~~ on the stage at Laura Keane's theatre, with a cast which has never since been equaled. She was greatly excited and slept none that night, and for a day or two talked of nothing else, until she was sharply upured for this by both her father and mother. From this time she entirely ceased talking, rarely answering in the briefest terms any question,

but passed her whole time, except when prevented, in writing letters to her Sunday, who was to her a real personage, and not sothern the actor. It was said that she must have written hundreds of these letters, which were filled with expressions of a sentimental love, quotations from the Song of Solomon, Barber's Festus, and such writings, but never expressed sexual passion. Both her mother and her nurse, who had been her wet-nurse in infancy, and had always been with her, assured me that there never was the slightest erotic manifestation, or indelicacy of either language or conduct, and that there was no reason to suspect self-abuse. Menstruation had begun when she was thirteen, and had always been regular until the previous September when without any known cause, it had ceased. So far as could be learned, she never had had leucorrhoea. For some weeks it had been difficult to get her to take sufficient food for existence, and for one period of four days all that she did take was forced down. Her general health improved greatly under constitutional treatment, and early in May she menstruated for three days, and in

Case 140

came for five days, her normal period. She had entirely ceased to talk about Lord Sandreay, and would sometimes occupy herself in reading or fancy needle-work, but was generally distract, listless and taciturn. I now urged an entire change by a trip to Europe, but three years of her childhood had been passed there, and she most strenuously objected to leaving home. She finally was induced to consent by the argument that her father, who had long been a sufferer from rheumatic gout, might be cured by a course of baths at Weisbaden. After leaving this watering place they travelled in Switzerland, and then went to Italy for the winter. During this time her health, both of body and mind, was entirely restored. While in Rome she met with a young man, whose family were well known to her father and mother, and who was personally agreeable to them, and they consented to an engagement; but fearing a possible recurrence of her former maladies, they insisted, without giving any reason that the marriage should be postponed for a year. The mother afterward told me that her husband and herself often seriously discussed the question whether

it was not their duty to inform the young man of the previous peculiar illness of their daughter, but they could never bring themselves to do it. The second year was passed very much like the first, by a stay of six weeks at Wiesbaden, and then travelling in Rome for the winter. The civil war of this country greatly distressed the father, who had large interests in the South, and in May 1861, the family made their arrangements to return home; but the father was taken ill and died in Paris. Before his death he foresaw ~~the~~<sup>the</sup> end, and advised immediate marriage, which took place in Paris. The family returned to New York in September. Early in February 1863 I attended the daughter in her first confinement with a fine, healthy boy. When this child began to walk and to talk, on account of certain peculiarities his father began to call him Sundryary, greatly to the terror and distress of his grandmother and the old nurse, who feared that it would awaken painful memories in the daughter, who never once had alluded to her former illness. The boy's walk was always by a little skip, with the left foot forward. He had a very curious stammer, and his

left brow was drawn down with the lids partially closed. The grandmother several times urged me to remonstrate with ~~the~~ his father for calling him by such a name, telling me with tears in her voice, that her daughter also was getting the habit of calling him so, and that his little playfellows called him "Dumny." I however persuaded her that silence on the subject was the part of wisdom. This is the only child that the lady has ever had. The child now twenty three, was educated abroad, and I saw him for the first time in several years last winter on the street, and then noticed that his left eyebrow had much the appearance which we see in Englishmen who are in the habit of wearing one eyeglass, and that his first two or three steps after stopping were with a little skip, his left foot forward, but he seems to have quite overcome the habit of stammering.

The above case is no doubt very extraordinary but the following is even more so:- In the appendix to Vol iii lecture 7 of Sir Everard Home's Comparative Anatomy 1823 there is the following letter:-

My dear Sir, In the course of above forty years' practice, I have met with many instances of women being much distressed in their minds, from an apprehension that some fault they had met with during their pregnancy, would occasion some defect or deformity in their expected offspring. But happily in no single instance, where such fears had been expressed previous to the delivery, has the decided effect been to my knowledge produced.

The case you enquire about was certainly the most extraordinary that I have ever met with; and since the publication in the Philosophical Transactions, of the effects produced in the succeeding progeny of Roid Martin's mare, after she had been once impregnated by a male quagga, I have thought that this case, as appearing to have some analogy to it, might be worthy of being recorded.

The lady of a member of Parliament, in one of her pregnancies, but at what period of the gestation I do not recollect, was extremely frightened by a beggar thrusting his stump into her carriage window. The fright made so strong an impression upon her, that during the

remainder of her pregnancy, it constantly haunted her imagination with the dread that her child would suffer from it; and so firmly was this idea impressed upon her mind, that when the infant was born, neither the assurances of her attendants, nor of myself, that its hands were perfect, could at all pacify her, till she was convinced by the evidence of her own senses from the child's being taken to her.

During this lady's succeeding pregnancy she met with no fright, and seemed to think no more about her former distress, for when the child was born she made no enquiries about its hands; but I immediately discovered that one of them was defective in the very way that she had so much dreaded in her former pregnancy, being entirely wanting.

I leave you Sir Everard to judge whether the alarm this lady suffered might not have the effect of occasioning some change in the ovarium, which determined the form of the foetus in the succeeding conception, in a way analogous to what took place with Bird Martin's mare, and with the ovi that had been impregnated

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by a wild boar, or whether in this case the coincidence ought rather to be considered to be purely accidental.

I am, with respect, Yours very truly  
John Sims  
Wimpole Street June 30. 1823.

*Case 16* The following case is from Bellot's Physiology which he quotes from Baur: A pregnant woman was greatly alarmed at the sight of a lengthened flame in the direction of her native place: as she was at a distance from this of 14 leagues: it was long before she learnt the place of the fire and this protracted uncertainty probably acted forcibly upon her imagination, for she afterwards declared she had the figure of the flame constantly before her eyes. Two or three months after the fire, she gave birth to a girl with a red patch upon her forehead, pointed and like an undulating flame. This still existed at the age of seven years. I relate this fact because I know all the particulars, for the individual was my own sister and I heard her complain before her delivery that she had the flame constantly before her eyes, so that we were not obliged in this case as in most others to refer to the past in order to explain the anomaly.



The following two cases are also from Eberleson's physiology:-  
I have seen a child with so exact a likeness of a leech full of blood and hanging down with its point highest, on the leg of the child of a lithographic printer that at a little distance any one would suppose a leech was there. The mother told me that in her fourth month of pregnancy she had occasion to apply some leeches: that one unwarned longer than the rest and hung down full of blood. This rather frightened her and she dreamt about it. Mr. Hildes of Holborn, her accoucheur, through whose kindness I saw the child, informed me that when the child was born and he observed the mark, he asked the mother if she had been frightened or had longed for anything. She replied by asking if the child was marked, and on receiving an answer in the affirmative, said Oh! it must be with a leech: and then related the same particulars which she afterwards told me.

A remarkable case was published in the London Med: and Physic: Journal for July 1828 by Mr George Bennett so well known for his contributions to natural history. A woman gave birth to a child with a large cluster of globular tumours growing from the tongue and preventing the closure of the mouth, in colour shape and size exactly resembling our common grapes; and with a red excrescence from the chest as exactly resembling in figure and general appearance a turkey's wattles. On being questioned before the child was shown her, she answered that while pregnant she had seen some grapes, longed intensely for them, and constantly thought of them, and once was attacked by a turkey cock. Both growths were successfully removed, and Mr Bennett was kind enough to allow me to see them.

As regards pregnant women longing for anything the Hippocratic treatise de Superfuet: says that when pregnant women long to eat excrement and earth, the likeness of these things appear on the head of the child.

Dr. Harvey in his "Essay on the Foetus in Utero" gives the following case as quoted from Darwin's "Rural Sports":— As the late Dr. Hugh Smith was travelling from Midhurst into Hampshire, the dogs, as usual in country places, ran out barking as he was passing through the village, and amongst them he observed a little ugly cur, that was particularly eager to ingratiate himself with a setter bitch that accompanied him. Whilst stopping to water his horse, the doctor remarked how amorous the cur was, and how courteous the setter seemed to her admirer. Provoked to see a creature of Sida's high breed so obsequious to such mean addresses, the doctor drew one of his pistols, and shot the cur. He then had the bitch carried on horseback for several miles. From that day the setter lost her appetite, ate little or nothing, had no inclination to go abroad with her master, or to attend his call; but seemed to pine like a creature in love, and express sensible concern at the loss of her gallant. Partridge season came, but Sida had no use. Some time after she was coupled with a setter of great excellence, which with no small difficulty, had been

procured to have a breed from, and all the caution that even the doctor himself could take was strongly exerted, that the whelps might be pure and unmixed. Yet not a puppy did Nido bring forth but was the exact picture and colour of the cur that had so many months before been destroyed. The doctor fumed, and had he not personally paid such attention to preserve the intercourse uncontaminated, would have suspected that some negligence had occasioned his disappointment; but his views were in many subsequent litters also defeated, for Nido never produced a whelp which was not exactly similar to the unfortunate cur who was her first and murdered lover.

Mr. Harvey gives the following case from Mr. Blaine's "Encyclopaedia of Rural Sports" "The late Lord Rivers [says Mr. Blaine] was famed for a breed of black and white spaniels, one of which, having more than the usual quantity of white, he presented to us. We had at the same time a pug-bitch of great beauty. The attachment of this bitch to the spaniel was singularly strong. When it became necessary to separate her on account of her heat, from this dog, and to confine her with one of her own kind, she pined excessively; and notwithstanding her situation, it was some time before she would admit the attentions of the pug-dog placed with her. At length however, she was warded by him, impregnation followed, and at the usual period she brought forth five pug-puppies, one of which was perfectly white, and rather more slender than the others, though a genuine pug. The spaniel was soon afterwards given away. At two subsequent litters (which were all she afterwards had) this bitch also brought forth a white pug-pup, which the fanciers knew to be a very rare occurrence. It is

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also a curious fact that each succeeding white puppy was less slender in form than the preceding, though all were equally white.

### Case 21

The following case Dr. Harvey gives on the authority of Dr. John R. Trail, Morymusk, Merdenshire:-

A mare and a horse (a gelding) belonging to a friend of Dr. Trail, had for some years worked together on the same farm, occupied adjacent stalls in the same stable, and pastured together in summer in the same fields. The gelding was of a black colour, with white legs and face, and had a singular peculiarity in the form of the hind legs, which when the animal was standing appeared as if quite straight, there being no appearance of the leg being bent at the hough joint, as in ordinary cases: the pasterns likewise were very long, so as to cause the feet to look as if placed almost at right angles to the legs. Having been some years thus associated with this gelding, the mare was covered by a stallion of the same colour with herself - both stallion and mare being

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of a bay colour, with black legs, and a small spot of white only on the forehead. The foal which was the produce of this connection very exactly resembled the gelding in colour, and in the shape too more particularly of the hind legs as above described. From the description I have attempted to give you [Mr. Trail writes me] you could not form any very distinct idea of the peculiar conformation of the horse; but the resemblance of the foal to him was remarkably clear.

### Case 22

The following case is quoted from Dungeison's Physiology who says it is an extract from the minute book of the Linnean Society of London of an account given by Mr. George Milne F. R. S. of the effect of the imagination of a cat on her young. One afternoon whilst Mr. Milne and his family were at tea a young female cat, which had arrived at the middle of gestation was lying on the hearth. A servant by accident trod very heavily on her tail: she screamed violently and from the noise emitted it was evident, that a considerable degree

of terror was mingled with the feeling from the injury. From so common a circumstance no extraordinary result was expected, but at the full time she dropped five kittens one of which was perfect, but the other four had the tail unmarkably distorted, and all distorted in the same manner

Case 23

The following is from the Medical Times and Gazette Nov. 21. 1876. page 525. It is in the form of an editorial of which this is the text of the story. Dr. Paul Reubrecht of Brige has put on record a very interesting case of congenital deformity of the nose. The deformity was a remarkable one consisting of some hypertrophy of the skin and enlargement of the nasal bones, but principally in an enormous development of the cartilage of the septum, which through it debated the nostrils almost completely obstructed them and produced a condition of things which unmistakably recalled the muzzle of a bull terrier. The mother was firmly impressed with the fact which



she had often recounted to her promising offspring that in the early days of gestation she had been severely frightened by a great butcher's dog.

Case 22

The following case is in the authority of Ferdyce Barker. A lady the mother of four children, the youngest ten years of age, had in each of her pregnancies, suffered to a severer degree than most women from nausea and vomiting up to the sixth month. At a very early period of her fifth pregnancy (it is certain that it was in the first month) her eldest daughter, aged fifteen, went into a jeweler's with some companions and they had their ears pierced for rings. Both ears became inflamed and suppurated, and they were a long time in healing. The sight of this daughter, the sound of her voice, or even the mention of her name, always brought on most violent retching and vomiting, and this was so severe and persistent as to dangerously interfere with her nutrition. The daughter was sent away to make a long visit

at the house of her uncle. She was brought home fully a month after her mother's nurses had entirely ceased. The ears had become perfectly well; but when she entered the house, and her mother threw her arms around her to welcome her, the vomiting at once returned, and continued so incessant and distressing that I was extremely anxious for several days as to the result. The daughter was again sent away, and remained until after the birth of the child. I did not re-enter the house until two hours after the child was born, and the mother was then quietly sleeping. A very dear friend of hers was at the house, the mother of one of the Fellows of this Society, who took me into an adjoining room to see the baby, and pointed out the lobes of its ears, which had the appearance of having been bored. She then showed me that each ear had an aperture, and passed through one a twisted thread. My impression is that it was only tried in one ear from the fear of making the child cry and awakening the mother. But it was a subject of common remark with many friends, during

the childhood of this infant, that his ears looked as though they had been bored, and I well remember that his father, a graduate of West Point, and a distinguished officer in our army, told me that, when this son entered as a cadet, one of the officers of this institution asked him "if his sons' ears had been bored on account of weak eyes". I must add that the mother, a very bright intelligent woman, was greatly amused and interested by these peculiarities in the ears of her child; but she always assured me that the anticipation that he would be marked in this way had never once entered her mind.

A lady was married at the age of twenty, when her father made her a present of a house. She was absent on her wedding-trip for two weeks, and then went to the Gramercy Park Hotel to stay while her house was being repainted and decorated, and such furniture as she wished was selected and purchased. She had not menstruated since her marriage. On her first day at this hotel she went to the table d'hôte and found herself seated opposite a gentleman with three daughters who all had hare lips. (This family was well known) The first glance at them made her so faint that she at once left the table, and always after took her meals in her private rooms until she moved to her own house. She never mentioned her reasons for this even to her husband, nor had she any suspicion that she was then pregnant. I attended her in her confinement, which was a very laborious one, and she was delivered by the forceps, profusely under the influence of chloroform. I saw at once that the child had a double hare-lip, and sent for Dr. Carmichael, who had finished the operation before

she awoke from her chloroform sleep. On becoming conscious she demanded to see her child, saying that she was certain that it had a hare-lip. I refused to allow her to see the child until the next morning, and gave her a full opiate. The operation was remarkably successful, the mother did well, and the child now nearly thirty, would not attract attention by the appearance of his lip, but only by an indistinct articulation of a few words. (Fordyce Barker)

Case 26

M<sup>rs</sup> — who had been married but a few weeks, was at the theatre with her husband and other friends. Something she knew not what vexed him, and he placed the point of his elbow on her hand, which was resting on the arm of her seat, and held it so firmly that she could not draw it away. Not wishing to make a scene in the theatre, she bore it silently until she fainted. The fingers were much swollen and very painful for several days. She never lived with her husband afterward, and subsequently obtained a divorce on the ground of

cruelty. Thirty five weeks and three days after the theatre incident I attended her, when she gave birth to a son. On the left hand, the first and second phalanges of all the fingers and the thumb were absent, looking as if they had been amputated. She has lived abroad most of the time since the divorce. I saw her in London in August last, for the first time in several years, and examined the hand of the lad, now fifteen years old, and unusually bright and clever. In reply to a question from me, which she says I have repeatedly asked in the infancy of her child, she assured me that never once during her pregnancy had the thought occurred to her that her child would be born with this deficiency. (Ferdyce Barker)

The following case was related by Mr. A. Brayton Ball to Mr. Furdye Banker of New York: Mrs. B., a woman of highly nervous temperament, pregnant between two and three months with her first child, was much startled by seeing a child about ten years of age with an hypertrophied prolapsed tongue. The child's appearance was extremely repulsive, and so shocked Mrs. B. that she nearly fainted. From this time on she was apprehensive that her child would be 'marked' in the same way, and this fear was shared by her aunt, who was present when the incident occurred, though the matter was never afterward referred to between them during the pregnancy. At birth Mrs. B.'s child presented exactly the same deformity. The tongue was hypertrophied, and hung down over the lower lip, but with this exception was perfectly formed. The tongue remained outside of the mouth until the child was several years old, and then gradually retreated into the cavity, but has always remained sufficiently large to interfere with the proper enunciation of words. No similar case has been known in other branches of the family, and several

children have been born since then, all perfectly developed. I regret that I can not state the exact period of pregnancy when the 'maternal impression' was made, as it happened nearly thirty years ago, but the date probably fell between the limits I have mentioned. Mrs B though not a patient of mine at the time, became so afterwards, and her account of the case agrees in every particular with that given me by her aunt, who was with her when the incident occurred, and at her confinement. I make no comment on the case, except to say that I regard it as in the very highest degree improbable that the only relation between the two events is that of mere coincidence.



British Medical Journal March 20, 1877. page 376.

Sir: The following case I think will be of interest to some of the profession. I attended Mrs M about three years ago in her first confinement, and she was delivered of a boy. When this boy was two years of age, he cut his upper lip severely with a pair of scissors, so that I had to in fact operate for hare-lip, leaving the usual cicatrice. Mrs M was then pregnant about six months. To my surprise, in delivering her of her second child, it had a cicatrice exactly similar on the upper lip, and on the same side of the face. Having been in a large midwifery practice in Kent, I have had many of these cases of "maternal Impressions" under my notice, but none so wonderfully marked as in the above case. I shall feel obliged to any of my brother practitioners if they can give me their opinion as regards these "impressions" - viz., are they invariably connected with hysteria or cerebro-spinal lesion? I think I may safely say in every case I have found the former. Also whether it has been noticed in these cases that the "shock" has generally occurred about the same time during pregnancy.

I remain yours obediently J. Dudley Saunders R.C.P. Ed =

The British Medical Journal June 30<sup>th</sup> 1877. page 832.

Sir:- The two following cases are I think sufficiently worth recording, as bearing on your article on Mothers' Marks in the Journal of the 16<sup>th</sup> instant. Although the results are different, the alleged causes were so definite that I think we cannot fail to attribute to nerve influences the bringing about of the unfortunate deformities.

Mrs W attended by a midwife, asked me to see her infant, six months old, for some deformity of the genitals. I found these parts in a thorough nondescript state. There were slight traces of external labia, no appearance of vagina, no opening of urethra, but a number of spongy fleshy masses, through the urine seemed to filter away, and kept in a constant state of dribble. I tried to pass a probe, and if possible, to find or establish an urethra; but after many attempts I failed and felt sure that, with such a state of things, the child would never live to grow up. She is now ten years old, a fairly strong and healthy girl, but still suffers from inability to hold her water, which dribbles away as at first. The labia are a little larger, and approximate somewhat more, but the parts within

present the same appearance. The mother told me that when about three months gone, whilst carrying something in her hands she tripped her foot against a pail standing by the fender and fell heavily forwards, striking the external genitals severely against the sharp edge of the pail. She was extremely frightened and hurt, and at once was filled with apprehension how it would affect her child. Pain and discomfort from the blow lasted with her for some considerable time, and after the birth of the child she was not in the least surprised when told of the deformity.

Case 30

The second case is that of an infant, whom I found after its birth to have a very large pot-wire stain on the left side of the face, taking in half the nose, and extending across to the ear and on to the neck; half the tongue and all that side of the interior of the mouth were affected as well. It was the most extensive marking I had ever seen. On asking the mother, a publican's wife, how she accounted for it, she said that when about four months gone she was joking with a man in the bar who suddenly took up a handful of malt grains, and holding her head fast, rubbed them all over her face and into

her mouth. Some neighbors who witnessed the occurrence told her directly she might look out for her child being marked and so sure enough it was.

The two cases are interesting, because there is no necessity to trespass in the imagination, as is often the case. If strong impressions are transmissible through nervous agency, the effects produced are well exemplified in those two cases I am etc Fredk ring RRP hand:

Case 31

British Medical Journal July 7. 1877. page 36.

Sir: In the Journal for June 16<sup>th</sup> you say that the above subject necessitates an accumulation of facts in order to arrive at a truthful conclusion. In the Glasgow Medical Journal for July 1863 I wrote in support of my belief that some maternal impressions do take effect upon the foetus in utero, and I gave then some authentic instances. Since that time I have seen a case of hare-lip ascribed by the mother to her having noticed a mason's upper lip accidentally split by a stone: but my attention was more particularly drawn to the subject three months ago

when being called to see a child three years old, supposed to be ill with fever, I turned down the bedclothes to examine the skin, and observed a peculiar mark on the side of the child's left hip. The mark which was slightly raised above the surrounding skin, was fully two inches long, and one <sup>inch</sup> and a half ~~wide~~ broad at the centre, tapering towards both extremities, and reserved in appearance and colour a snail-vig. dark on the back, and becoming lighter in colour towards the edges of the mark. On inquiry of the mother, she explained that when she was three months pregnant with this child she had, after carrying her husband's dinner to the field, sat down on the grass. On her rising to go away, the husband called her attention to a crushed snail sticking to her dress. "A guinea ~~was~~ went through me" she said to me, "but after a week I thought nothing about it till the birth took place." The mark on the child is a fac-simile of the crushed snail even to its "horns". The mother has three other children without any peculiarity. I offer no explanation of the localisation or fixation of black pigment which goes to make up this "snail", but simply record the fact.

When the child once had measles, the mark showed in the  
disquamation of the scarf-skin. Generally. W. Whiteans.

Case 32

British Medical Journal July 14<sup>th</sup> 1877. page 67.

Sir. Two cases illustrative of the above, recorded in the  
Journal of June 30<sup>th</sup>, remind me of the following one,  
which came under my notice in February last in London.  
I was called to see a child aged fifteen months, suffering  
from small pox. When examining it I observed a mark  
on the outer side of the left leg, about five inches in extent,  
of a brownish colour, unaffected by pressure, and which  
had a most striking resemblance to the profile of a bell -  
the eye, ear, and mouth being unremarkably distinct. On  
questioning the mother, she informed me that, when about  
seven months pregnant, she was knocked down in the street  
by a bull, and in the fall she hurt her right leg ag-  
-ainst a box. She fainted and was carried home in that  
condition. On recovery, and for some days subsequently, her  
leg at the seat of injury was very painful. When the  
child was born she noticed the mark. This woman

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as I had several opportunities of observing, was of an extremely nervous disposition. I am etc Mr Smyth.

Case 33

British Medical Journal Nov. 3. 1877. page 655.

Sir, Allow me to contribute two cases of maternal impressions which have come under my own observation during the practice of my profession. It will be observed that in both cases I was an eyewitness to cause and effect. The first case illustrates how the impression can be conveyed by physical, and the second case by mental causes.

A lady in the early stage of pregnancy, while at a small conjuring entertainment, was accidentally struck on the forehead by the handle of a galvanic battery. The blow (a smart one) startled her very much, and left a "black and blue" mark for some days. I was sitting near her at the time and rendered assistance. In the course of time I attended this lady in her confinement, and the child was born with a decided black and blue mark on the forehead. This child died when four weeks old of whooping cough, but the mark remained very

visible during its short existence.

Case 34

A lady in the early stage of pregnancy, sent for me one morning to see her little boy three years old in consequence of a puppy having bitten the glans penis. There was some swelling of the parts, which bent the penis in such a manner as to cause the child to micturate backwards between the thighs. The mother was very much alarmed at the time.

I attended this lady in her confinement. Two days afterwards I was requested by the nurse to examine the baby (a boy) because the penis was found to be deformed. The glans penis was quite round and bent, with the urethra looking backwards, precisely resembling the little long penis which had been bitten by the puppy.

I venture to think these two cases typical of their kind, and something beyond mere accidental coincidences  
I am etc Jasper Cargill M.D.



British Medical Journal. March 28<sup>th</sup> 1885. page 653.

Twin Maternity: Alleged Maternal Impression:-

A. J. aged 42. married sixteen years had ten children, the eldest eighteen years old. Menstruation ceased last March and she expected her confinement about the middle of November, at which time she consulted a medical man, who told her that if she went much longer she would probably have twins, she replying that she did not care so long as they were not Scissors.

On January 22 she went to the lying-in Hospital and stated that she thought there was "something wrong with her", and that haemorrhage had presumably occurred. On the 23<sup>rd</sup> having been sent for, I found she had been in labour since 10pm on the previous night. On examination the head was found pressing on the perinaeum, and all pains had ceased. This being the case I immediately applied the forceps, and delivered the head without difficulty; but it was not till after prolonged traction that the shoulders partially emerged when I discovered that there was an outgrowth from the chest which prevented any further movement in that direction. I therefore

passed my hand round the lower part of the abdomen and delivered the ~~birth~~ <sup>two</sup> breech and legs. The child was now entirely born, but finding it connected from the neck to the umbilicus with another child still in the uterus, I laid hold of the legs of the second, and delivered it without difficulty. The placenta followed in a few minutes. There was only one cord, proceeding from a common umbilicus. The children both born dead were males. In the ordinary position they faced one another, but the connecting link was sufficiently lax to allow them to lie partially side by side. In every other respect they were perfectly formed and weighed eleven pounds.

The next day when the mother heard of their condition she told the nurse that, in March last, she went to see the "two-headed Nightingale" and fainted at the sight.

I regret to say that the occurrence so affected her that, three days afterwards she committed suicide by jumping out of a window.

A. R. Winstone M.R.C.S. Eng. and L.M.S. & C.P.S.

British Medical Journal November 7<sup>th</sup> 1885. page 900

Sir:- Twenty two years ago I operated for hare-lip upon a young man a millworker; and when I was examining the lip a week after the operation the wife of a gentleman in the neighbourhood, came into the cottage where I was and looked at it also. In a few days her husband called upon me, and said that his wife, who was three months advanced in pregnancy, had a nervous apprehension that the child to be born would have a cleft lip. I ridiculed the idea and did everything I could to allay their fears, but without success. To my great surprise however a female child was born six months afterwards, having a hare-lip, in position and character corresponding, very closely to the one seen by the mother.

I am Sir yours faithfully  
William Wells M.D. F.R.C.S.

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British Medical Journal January 30<sup>th</sup> 1886. 2237.

Case 37.

A lady of refined tastes was in the habit of sitting before a group of statuary with one little figure of which she was greatly enamoured. This was a "Cupid reclining" his cheek resting on the back of his hand. When her baby was born, his resemblance in form and feature to the little Cupid was at once striking. On seeing him the next day in his berceau-nette I perceived he had assumed the precise attitude of the statuette - the cheek upon the back of the hand; and this position he invariably and of course involuntarily, adopted during sleep, not only throughout infancy, but up to advanced boyhood when I last sight of him.

Edward Gurnaway Faversham

British medical Journal February 20. 1886 p 374

Sir. As regards the influence of maternal impressions and particularly that class of cases referred to by Mr & Garaway, I find an instance among my notes. A married woman the mother of several children, while suspecting pregnancy or perhaps because of it, yielded to the whim of having her ears re-pierced, and taking to her long neglected earrings. The trying operation sensibly affected her, and fears for the safety of the child troubled her until delivery. At birth, the child seemed all right until it was discovered to have both ears pierced, and ready for the ring or pendent. Through the right tube the usual perispiral thread-loop was forthwith passed; the left however proved a failure, the closing process having set in

A M Brown M.D

Taking it for granted that the thirty eight cases given are really due to maternal impressions it is to be noted that a great many of them are due to incidents which must have impressed the sensorium through the sense of sight, with something superadded to deepen the impression upon the female mind. This something may be pleasing, or, it may be in the opposite direction, shocking in its nature. The other cases are due to powerful impressions, and a feeling of shock or terror in addition. as in cases 22. 26. 29. 30. 32. 33.

There are two cases (Nos 12 and 13) of Dr Haverly which he seems to think may be referable to mental impressions acting upon the male at the time of coitus. But in the cases referred to, the circumstances are such that the influences would as likely act upon the female as upon the male. On this question the following case is from Dr. Fordyce Barker's paper "on the Influence of Maternal Impressions" read before the American Gynecological Society in 1886. The case was communicated to him by Dr. J. A. Robinson of Chicago. "As

accumulative evidence for your paper on the "Influence of Maternal Impressions on the Fetus" I trust you will pardon me for relating the following: Mr. K's first wife was killed by the cars, both lower limbs being amputated. His second wife bore him a son with the lower extremities amputated above the knees." There is too little information in this case, and it is very difficult to believe that the result was due to the supposed cause. Dr. Fordyce Barker says "This last case I regard as the most striking confirmation of the theory of Darwin quoted in the paper, as to the direct influence of the male element on the female, that has ever been published in regard to the human race. The question is naturally suggested, whether the impressions which led to the absence of the lower limbs in the fetus were not paternal rather than maternal."

In the present state of our knowledge it may be advisable to make no comments.

The results of Maternal Impressions are sometimes general as is seen in cases 2. 3. 8. 9. 19. 21 and 37 where the impression on the child seems to have resembled its uterine cause generally. In the others the results are particular, generally resembling the original. In one <sup>"adult"</sup> case, with an intrauterine amputation of hand at wrist caused by maternal impression an intrauterine amputation in the upper arm at the insertion of the deltoid.

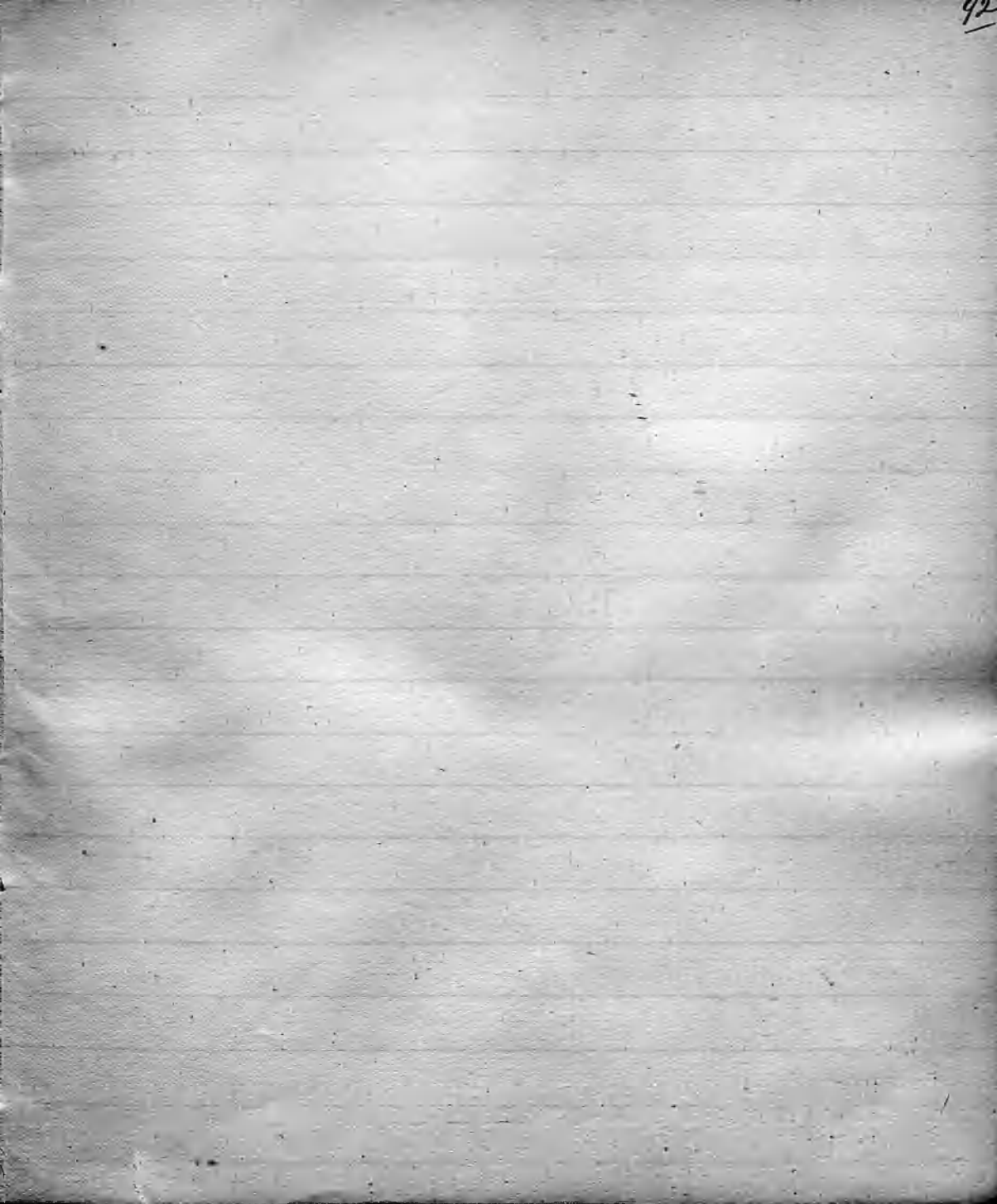
In some cases the effects were only superficial; in others it affected even the bony skeleton. In some cases indeed the characters acquired by mental impression were prepotent (to use an expression of Darwin's) over those of inheritance; as in case 21 where the offspring resembled not only in colour but in shape the gelding which was the origin of the Maternal Impression, differing in this respect most materially from its real parents.



As regards the time when these impressions acted upon the mother there is great variation. The most of them seem to have acted at the time of impregnation but of the cases recorded some are said to have occurred years before marriage as in case 14, and it is not noted that the impression was even in her mind at her marriage: Some are said to have been acting for a long time upon the mind, while others seem only to have acted for a short time. In some there is no expectation that there will be deformity, but in others there is. Dr. Purdyce Barker rejects as unscientific evidence, all cases where pregnancy existed for three or four months before the mental impression was believed to be made. In the cases given however two cases (Nos 17 and 30) were in the fourth month of pregnancy. No 16 and 28 six months pregnant. No 32 seven months pregnant

There is one case which had most peculiar results. No. 15, in which the maternal impression did not act upon the foetus then in utero though expected, but it acted upon the foetus in succeeding pregnancy when there was no expectation of any mishap. Smi who communi-  
 -cates this case to Sir Edward Home asks if the mental impression may not have occasioned some change in the ovarium, and that this change determined the form of the foetus in the succeeding conception

The thirty eight cases given are only a few out of many. There are numerous cases recorded in the Medical Journals. Of course it is admitted that there are various causes for the production of marks and deformities in the foetus, and the question arises whether in these cases there may not be other reasons for the results given. The history given with each case shows a relation between the result to the given cause. The utter impossibility of explaining the mode of action of a maternal impression has always been the reason for doubting them.





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In 1724 Dr. James Blondel of London wrote ~~many~~ ~~merely~~ a work "On the powers of the Mothers Imagination over the Foetus". It is an attack on the views of Samiel Turner on this subject as given by him in his "Treatise of Diseases incident to the skin". Turner believes in the influence of maternal Impression upon the Foetus in utero: Blondel ridicules the belief.

Blondel admits that the prosperity of the foetus depends upon the welfare of the mother: that it suffers from distempers, accidents &c and also from affectations of the mother's mind, but only so far as the mother herself suffers. He believes that all marks and deformities can be accounted for without reference to Maternal Imagination. He mentions "distempers of children in utero, the increase of some parts of the Foetus being interrupted. Force and violence upon the body of the Foetus. Misfortunes from Inheritance" &c but these causes do not account for all. While admitting that distempers of children in utero, and force and violence upon the body of

the fetus will produce deformity, in the other cases there must be an antecedent cause to bring about this interruption to the natural increase of parts, and as regards the misfoldures of inheritance, these must have had a beginning at some time or other, and a cause to produce them.

Arrest of development as a cause of deformity: A great many deformities have been accounted for by arrest of development. Spina-bifida due to non-closure of the bony parts of the spinal canal. An anencephalic skull due to arrest of growth of vault of cranium: hare-lip due to arrest of growth in middle line of face: the two sides not meeting. As all these parts are closed early in intrauterine life, ~~and~~ in the event of a Maternal Impression occurring say about the third or fourth month of pregnancy, and a child afterwards born with a spina-bifida, the argument undoubtedly would be that the maternal impression occurred too late to account for it. At the time of the Maternal Impression the spinal canal should be closed, whereas if open, the real cause of this condition

must have occurred at a much earlier period in intrauterine  
 life. But beside arrest of development another way of  
 accounting for these deformities can be given: Suppose  
 a foetus in which development proceeds regularly up to  
 the third month of pregnancy. Then a maternal  
 impression occurs which acts upon the already closed  
 spinal canal, leads to the absorption of its bony walls  
 first in the middle line, and this absorption proceeds  
 till a real spina-bifida is produced. It is true  
 that Professor Cleland accounts for this giving way  
 and absorption of the walls of the spinal cavity to  
 a dropsy, that this dropsy causes increased internal  
 pressure and absorption and ultimate rupture of the  
 spinal cavity. He refers the production of this dropsical  
 condition to the effects of an accidental stimulus  
 acting on the whole embryo or a part. This acting  
 at an early period would produce arrest of devel-  
 -opment, and non-closure of the spinal canal, but  
 he says "we may go ~~further~~ further, and even if  
 we shall find reason to believe that spina-bifida  
 and anencephalus result from the rupture of an

already closed cylinder, refer the abnormal condition to over-stimulation in the first instance." May not this accidental stimulus be a maternal impression?

"We would expect he says further that a difference of result would depend on the exact period at which the stimulus is applied." "Over-stimulation occurring soon after impregnation of the ovum would lead to fissiparous division of the germinal mass, resulting in two embryos, that at a later date, or carried to a slighter extent it would cause partial division resulting in such forms of double monster as have a portion of the cerebro-spinal axis undivided: that anencephalons and lumbar spinal-bifida would be still later" As far as this view is concerned case 35 (double monster) would correspond for the date of maternal impression and over-stimulation, but a large number of cases would require to be dealt with before any decided statement could be made.

There is a greater difficulty in accounting for hare-lip; the conditions are different. At the



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discussion on Maternal Impressions at the American Gynecological Society in September 1886 a number of cases of hare-lip are given, the maternal impression, the supposed cause, being dated at advanced periods of pregnancy. In case 25 the supposed cause occurred at the end of the second week of pregnancy. In case 28 at six months. May the first be accounted for by an arrest of development due to the maternal impression, and the second to absorption starting at date of supposed cause, and proceeding no farther than the formation of a cicatrix? But would absorption leave a cicatrix and not a mere striking of parts? The difficulties of the case in our present state of knowledge are not in a condition to be explained satisfactorily.

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As regards the misfortunes of inheritance, undoubtedly malformations can be inherited, but there are some cases on record in which it is said that the primary cause of the malformation was a maternal impression, and that when once produced these malformations are inheritable.

In the British Medical Journal for May 22. 1886 page 975 a case is recorded of a malformation which was inherited to the fifth generation. The malformation was claw-feet, and the alleged cause was a maternal impression; a fright, at the sudden and unexpected sight of a basket of living cray-fish during pregnancy.

In the same Journal for June 12<sup>th</sup> 1886 page 1007 there is a case which dates from 1798. A child is born then with a peculiar pincer-like conformation of the hands and feet. This condition was attributed by the mother to an alarm in the early period of her pregnancy, caused by the sight of a parcel of living lobsters. This abnormality descended through four generations.

Chirapoy: Blundell explains what this is. He says  
 "Whether in the fit of imagination, Chirapoy or the  
 application of the mothers hand to any particular  
 place of her body, though accidental, and not  
 premeditated, can work sympathetically upon the  
 like part of the body of foetus, and be of any  
 dangerous consequence? He considers this nonsense  
 and one would be very much inclined to agree  
 with him, but the following two cases are recorded  
 in the Transactions of the American Gynecological  
 Society for 1856

"Miller cites the case of Mrs Welkins who was  
 suddenly seized with an uncontrollable longing for  
 oysters, which could not be gratified, and fearing  
 that her intense longing and disappointment would  
 result in marking her child, she clapped her  
 hand upon her buttocks, with the wish that it should  
 be there if it occurred. The youngster was graced  
 with a large and well formed oyster upon his  
 buttock. This case seems to prove too much, and  
 would not have been referred to, but that it ~~was~~

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is corroborated by the second case which has been reported by a physician whose accuracy and fairness no one will doubt."

Mrs P during the fourth month of her pregnancy received a visitor whose face was disfigured by a mark of bright scarlet color, covering one half of her nose and extending on the cheek. The vivid account of her mortification and troubles, and of the failure of her efforts to have it removed, made a profound impression upon Mrs P. When the visitor discovered that her friend was enceinte, she was terrified, and expressed fears that the baby would be marked as she was. Mrs P had the same fears and remarked, "Well if my baby is to be marked, I will mark it here" slapping herself on the right buttock. The child was born in November following at full term, with a bright red mark on the right buttock, irregular in shape and measuring two and a half inches. This case is reported by Dr. Prentiss, to whom the interview was related at the time of its occurrence, and who was present at the birth of the child.

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" These two cases are as closely allied as two earthquakes, occurring at different times and in widely separated localities, can be. The phenomena in both are so alike, that a like cause must have been common to both. Chance does not offer such precision. Freaks of nature cannot be so exact in concomitant detail. Similar coincidences vary sufficiently to dismiss the suggestion of like causes. After-thought is eliminated. There is no circumstance in the history of either case which attaches to heredity. If the first by itself, should appear as an event proceeding from an unknown cause, the second is surrounded by all the conditions of intelligent deliberation."

The above two cases are given by N S C Bussey.  
Washington

Blonder objects on the grounds that

- I The Imaginativists are not agreed upon the person whose imagination does the work
- II They can't tell the time when Imagination is in force or seasons
- III They quarrel about the extent of its power.

There no doubt are serious objections, and they are no nearer settling now than they were in 1727. Cases have been given in which it is supposed that the imagination of the male affected the foetus. It is impossible to explain some of the cases taking into consideration the time when Imagination was supposed to act. And as regards extent of power cases have been given in which it seems to be potent over the powers of inheritance. These objections however may be explained as being due to absence of scientific observation. The natural history of a maternal impression is still to be worked out.

Blonde also argues that "There is sometimes Imagination and yet afterwards neither marks nor deformities follow:" and what is more surprising that during the long time Imagination is supposed to act the vast majority of women must be exposed to passions, frights, and desires, and that consequently marks and deformities ought to be of common occurrence, whereas they are comparatively rare. The reply to this is of course that fortunately all women are not susceptible mediums for the transmission of such impressions.

"That there are Marks & without any precedent Imagination." is perfectly true because it is not claimed that Maternal Imagination is the cause of all marks and deformities, but only one out of many.

As regards "Marks and Deformities pretended to be subsequent to Imagination". Blondie gives many cases only to explain them away or ridicule them. Some of the stories are very ridiculous, but he derives too much. He gives a case from Hildanus or the authority of Rudvicus Homicerus a physician of Frankfurt. "A woman having been frighted with the firing of a gun, was delivered of a child with a wound in the back, of the same shape, as if it had been done with a musquet shot." He asks "How are these wounds made? Let Imagination be never so much arbitrary and tyrannical, yet it must make use of some means to execute its will and pleasure, and of some bodily force upon the flesh of the child. Let the blood and spirits be in never so great a hurry, they can't do the work of a musket ball, of a hammer, or of a knife: And what necessity is there to alledge chimerical causes when there are fingers, and nails, or other tools near at hand?"

Montgomery gives the following case, which he quotes from the Medico-Chirurgical Transactions Vol 82



page 59. " A lady ~~was~~ when seven and a half months pregnant, in going down stairs, trod upon a cat, to save herself from falling, she made a violent effort, and sprang down the flight of stairs, receiving of course a severe shock which produced faintness: and next day a slight sanguineous discharge per vaginam showed that some internal injury had been sustained: however she soon recovered her usual health and spirits. Six weeks afterwards she gave birth to a healthy male child with an extensive open wound across its back and down the arm to within an inch of the elbow. Now what could have made this wound or rent. The severity of the labors? - no, for it was unusually easy. Was it caused by the doctor? no, for there had been no interference whatever; but one existing fact showed beyond all ~~ambiguity~~ controversy that the wound must have been made some time before birth: for a large proportion, fully a third, of it was already healed, and the rest of it had a healthy granulating surface like a wound

healing in the usual manner. After birth the healing proceeded most favorably and in about five weeks no other sign remained than a large cicatrix. That this wound occurred at the time of the mother's accident on the stairs, six weeks before her delivery, seems almost evident: though the exact mode of its production is a problem by no means easy of solution: but this does not so much concern us at present as the fact of which there is no doubt that a child was born, with a large open wound on its body, part of which was healed: showing that it must have occurred within the uterus sometime before."

This story has nothing to do with Maternal Impressions, but the connection between the mother's accident and the injury to the child is unexplainable. It shows however that a child may be born with a granulating wound, and which <sup>was caused</sup> ~~occurred~~ during intrauterine life.

He also relates cases of children born with the abdominal walls deficient and the viscera protruding: He ridicules the idea of these being due to maternal Impression but <sup>ascribes</sup> them to an "impediment in the growth of the muscles of the abdomen". But he does not say what caused the impediment. There are cases given of this kind in the Transactions of the American Gynecological Society for 1886.

He gives the following case from Dr. Turner: "Bartholin says, that at Reyden in the year 1638, a woman of the meaner sort, who lived near the church of St Peter, was delivered of a child well shaped in every respect, but had the head of a cat: Imagination was that which had given occasion for this monster; for being by with child, she was frightened exceedingly by a cat gotten into her bed."

Blondel answers this by saying that "If at one a short chin, and a few hairy moles near the sides of the child's mouth, were sufficient to give countenance to that report."

Taking the description from Dr. Blondel it may be believed that it had some resemblance to the head of a cat, and was not an exact copy. If so there is an example in case 23 of something similar.

The following case is also from Dr. Turner, and criticised adversely by Blondel.

"In the same City [Prague] and much about the same time, there was the like, if not a greater miracle of nature; a woman was delivered of a son, who was born with his forehead cut and inverted; and this came to pass through the vehement imagination of the mother, who three weeks before she fell in travel had listened very attentively to a guest in her house, who discoursed and exactly described the manner of the Jewish Circumcision, at one of which, he had that morning been present. I was an eye-witness thereof, being brought by Kepler the great Mathematician to behold and view the child."

The following case is from America: It is

given by Dr. Bacey of Washington as quoted from the American Journal of Obstetrics May 1871 page 131. Dr. Goodell being the reporter of the case.

"Dr. Goodell stated, that while he scouted the extravagant statements made by the lady with regard to the influence of maternal impressions upon the fetus, yet he was inclined to the belief that there is more in them than physiologists are willing to concede. In support of this he would narrate a remarkable case. It occurred in the family of a Fellow of the Obstetrical Society of Philadelphia, to which Dr. Goodell, with the permission of the father, had narrated the circumstances. They were published but somewhat imperfectly in the American Journal of Obstetrics May 1871 p 131."

"The lady menstruated for the last time May 6 1870; and on July 7<sup>th</sup> her husband was invited to assist at the rite of circumcision in the family of a Hebrew friend, living directly opposite. The lady was intensely interested in the description of the operation, of which she demanded the fullest details

and which she deemed a very "cruel" one. It indeed made so great an impression upon her that for several days it was the constant burden of her thoughts and conversation. She would even wake up her husband at night to talk with him about the cruelty of the rite and the sufferings of the child. As the result will show, her husband at that time took alarm lest this morbidness on his wife's part should affect the future child. She was delivered on February 6<sup>th</sup> Dr. Goodell being in attendance. The child, a boy, was born during the momentary absence of the father, who was called out of the room to see an office patient; but he returned before the cord was cut, and immediately asked what the sex was, and whether the child was perfectly formed. Being on the further side of the bed, he could not see the child. Dr. Goodell replied that it seemed to be sound. "Examine the penis" anxiously demanded the father, "and see whether it is all right". The room being dark Dr. Goodell could not see very well, but thought

that he detected a hypospadias, and so informed the father. Without looking at the child, he at once said " You don't mean hypospadias but circumcision" Sure enough upon a closer inspection, the glans penis was found exposed, while the retracted prepuce, adherent to the corona glandis, actually showed the yet granulating sore of what seemed to be a recent circumcision. Dr. Goodell stated that this case had converted him to the belief that there sometimes exists in the early months of gestation a relation of cause and effect between a maternal emotion, especially of a powerful nature and a birth-mark."

This later case of circumcision <sup>is</sup> more extraordinary than the first. In the first case the supposed maternal impression occurred three weeks before confinement, and there is no mention of a granulating sore. While in the second case seventh months after a similar event a child is born with a granulating sore upon the prepuce. There is no question of absorption here, there is the effects of cutting.

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There are some cases from Dr. Turner which certainly pass belief, but there are also recent cases recorded which are certainly marvellous. Fardye Barker in a foot note gives the case of the Snake Man Robert of Copeland who in 1839 was twenty-nine years old "his mother when six months pregnant was struck, but not bitten by a rattlesnake. She was so forcibly impressed that her child when born had a face resembling that of a snake in his teeth are like fangs, his eyes and mouth are those of a snake. He has not control over his right arm and leg, the joints of which are <sup>angularly</sup> ~~extended~~ = fully loose. At times his right arm will curl up close to his body, and then will project and strike at an object four or five times just like a snake. His right foot and leg will then execute similar movements. His face then simultaneously becomes excited, the angle of <sup>the</sup> ~~the~~ mouth is then drawn backward, the eyes snap, the lips separate, showing the teeth, and the entire aspect becomes snakey" The names of six physicians are attached to the foregoing account, certifying that it is substantially true. "



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This case is certainly wonderful; professor Oliver Wendell Holmes in his novel "Elsie Venner" would seem to be a believer in Maternal Impressions, and to have very advanced views on this subject.

The key to Blondel's position in this matter is wherein he says that "Experience is against the Imaginativists" and also where he says that "he has shown that the testimonies which are produced for the strength of imagination are dubious or false or not to the purpose." But since his time numerous cases have been recorded in the very best of evidence in which the result has so obviously a connection with the given cause that they cannot be doubted. This admitted, all the other objections fall to the ground. As regards whether it acts through the Male as well as the female or both: the range of time in which it acts, and the full extent of its power, all these questions can be left for decision after further inquiry.

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Reason on the other hand has nothing what-ever to do with it. When a person makes a statement on any subject, it may appear in our judgement to be reasonable or unreasonable as the case may be, but when we are dealing with the laws of nature, we can only accept them. There are a great many things in nature which are quite beyond human reason to grasp, far less explain. Maternal Impressions, and the principle of Inheritance were known as facts from the earliest times, but the methods in which they <sup>were</sup> are at present quite unknown to us.

Blandel argues that as conception, the nutrition and increase of the embryo, are quite beyond the mother's will, and as she cannot by any force of imagination make a mark upon her own body, it is unreasonable to suppose that she can make any mark upon the foetus in utero, who is a distinct and separate individual. But it is to be noted that the incident which gives rise to a maternal Impression generally acts suddenly, when the will is off-guard and taken by surprise, or it may act continuously for some time.

In such works as Carpenter's Mental physiology and  
 Jukes, on the Influence of the Mind on the Body  
 numerous cases are given in which an emotion  
 of the mind had peculiar actions upon the  
 body. "A lady sees a child going into some  
 grounds by a large iron gate, and she imagines  
 that the gate on shutting impinges upon the  
 child's fingers. In this she is mistaken as the  
 child is not hurt, but the result to her is a  
 painful and swollen condition of the fingers,  
 and which on incisions being made a large quantity  
 of pus is evacuated." Such cases are certainly not  
 every day experiences in every human beings life,  
 but they are sufficient to show that such things  
 do happen. In the same way striking results of  
 material impressions are not evident in every child;  
 they are exceptional as compared with the number  
 of children born.

As regards anatomy we have no proof that there exists any connection between the nervous system of the mother and the foetus in utero. This is the route by which we would expect a nervous impression would be conveyed. But the placenta is considered to be a double organ, a maternal and secreting part and a foetal or absorbing part, and that its principal function is the nutrition of the foetus. (Ercolani)

As far therefore as nutrition is concerned the placenta and Mammary glands are analogous organs: the one acting before and the other after birth of the child. Abundant evidence is given in works on mental physiology that the Mother's mental condition has a most important influence upon the nutritious qualities of the milk, and we can infer as much upon the secretion of the placenta. Indeed undoubted testimony can be given that after a fit of passion the mother's milk has had poisonous qualities added to it, and the death of the child as a consequence. But a result of this kind is a general impression and cannot

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be compared to the particular effects of a Maternal Impression.

It has been suggested that the change effected by a maternal impression is produced through the nervous system acting upon the blood (Harvey: Julia) But it is impossible to understand how changes in the blood of the mother however produced can cause particular effects upon the foetus in utero, as is seen in some of the cases given. It is quite conceivable that nutrition through the placenta may have some superior power, as compared with nutrition in after life by food introduced into the stomach. It may have what might be called a high degree of vital force: then next in order would come nutrition by suckling from the mammary gland: then in grown up life fresh food either animal or vegetable. This is shown that when fresh food is eliminated from diet, disease is produced in the form of Scurbutus. This of course merely shows that probably there is transmitted to the foetus something more than mere nutritive elements.

Dr. Paul Kiebrecht of Kiege (Medical Times and Gazette Nov. 4. 1876 page 525) has suggested Animal Magnetism as the means by which a Maternal Impression may be transmitted to the foetus in utero. In the British Medical Journal of Nov 16 1877 in a leading article on Maternal Impressions he suggests that the effect is produced "as it were by an induced current of nervous impression". This is comparing the mother and ~~child~~<sup>foetus</sup> to an induction apparatus, in which the mother acts upon the ~~the~~ foetus inductively. Here again however the action of the primary coil upon the secondary <sup>is</sup> ~~may~~ to be said ~~to be~~ general and not special, the idea no doubt is that suppose a Maternal Impression is induced leading to the formation of a hare-lip, the current so to speak passes from the Maternal sensorium to her own lip, and thence inductively to the lip of the foetus in utero.

In the case (No 15) communicated to Sir Everard Home by John Sims, he suggests in his letter "whether the alarm this lady suffered may not have the effect of occasioning some change in the ovarium which determined the form of the foetus in the succeeding conception, in a way analogous to what took place with Lord Minton's mare and with the sow impregnated by a wild boar." The only way of accounting for this case is that the maternal impression acted (not upon the child then in utero, but) upon an ~~ovum~~ ovum in the ovarium, and which upon fertilization and development exhibited the impress of the maternal alarm. This is also an explanation of case 14 and indeed of all cases in which the maternal impression preceded conception, but case 15 is unique as it acted by preference upon an ovum then in the ovarium and not upon the foetus then in utero. This is of course presupposing that the relation between the two events is as cause ~~causa~~ and effect, and not accidental.

The influence of Maternal Impressions upon the ovum, before fertilization, during fertilization and after it must be considered, from the evidence of competent observers, as an undoubted fact. That the time during which Maternal Imagination acts seems to be very variable, and according to some observers to act even at advanced periods of pregnancy. That in some cases its power seems to act upon minor characteristics, in others to overcome all the powers inherent in the ovum due to Inheritance. That it has even been suggested that Mental Impressions act through the male directly upon the ovum. The limits of a maternal impression in time and extent therefore are still to be worked out: its mode of transmission incomprehensible.



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The following is Rokitanstep's opinion on Maternal Impressions. page 11. "The question whether mental emotions do influence the development of the embryo must be answered in the affirmative. Instances undoubtedly have occurred of such maternal impressions - fright more particularly - when violent giving rise to malformations. Seeing that many malformations originate in an arrest of development, and consequently the former bears a certain resemblance to various animals, it is just conceivable that the development of the embryo may be so arrested by maternal emotions as accidentally to occasion a likeness between the object that produced the impression and the resulting malformation."

Further on he says "that most malformations represent certain stages of the development of the embryo and of its organs, at which stages formation has stopped short, or from which ulterior development has ceased to follow the normal type. The malformation is therefore essentially an arrest of development. This theory of malformation is in a

quat measure correct. Still it does not attempt to explain the cause of the arrest, which may be one of those already enumerated, be it concerned with the germ, with sickening of the embryo, with mechanical influence or with mental emotion.

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