HEREDITARY PREDISPOSITION.

BY T. L. OGIER, M.D., OF CHARLESTON, S. CAROLINA.

By hereditary predisposition, we mean a congenital peculiarity in the *structure* or *form* of one or more organs of an individual, derived from his parent—rendering him peculiarly liable to certain diseases. The frequent transmission of *external form* and *features*, from parents to children, is a fact well known, and has come under the observation of every one; and this resemblance of the offspring to the parent, not confining itself to the external form, exists often in many important internal organs, and not unfrequently in the entire organic structure. If, then, an individual be affected with a disease arising from some organic defect or peculiarity, the offspring of that individual inheriting the same organic structure, will be liable to the same organic disease; and thus are diseases perpetuated from generation to generation; and it is in this way that in our domestic animals, we have constant varieties springing into existence. Pritchard relates an instance of a new breed of sheep, arising from a lamb having been born with exceedingly short legs. “He was carefully preserved and bred from, and many of his lambs inherited his deformity—these were selected and bred together, until an entire new breed of sheep was produced, called the otter breed, from their having all very short legs, with the ordinary long bodies of common sheep. They are considered valuable, on account of their deformity not allowing them to get over fences, and enabling them to be more easily kept.” The frequent occurrence of these varieties in animals, affecting the bones, color of the skin, the length and texture of the hair, &c., has caused some naturalists to consider the different races of man to have been produced in like manner.

The diseases arising most commonly from hereditary predisposition, are scrofula, consumption, gout, insanity, asthma, angina pectoris, epilepsy, apoplexy, amaurosis and cancer. These by many authors are called hereditary diseases; but as this term is not exactly correct as applied to them, it would be as well here to draw a distinction between *hereditary disease* and *hereditary predisposition*. There are cases in which the disease seems to have been transmitted directly from the parent to the fœtus, as in an instance related by Mr. Hey, of a child having been born with syphilis, whose mother had never been diseased in the genital organs, but had contracted the disease in the *nipples during a previous confinement*, by an infected nurse drawing them—the disease had never been eradicated from the system of the mother, and when the second child was born it was found diseased. Dr. Jos. Brown, also, relates his having found tubercles in the lungs of still-born infants, whose parents were consumptive. These, then, are cases where the *disease* may be called *hereditary*—where the embryo may be supposed to have received a morbid principle, or the seeds of disease, with the principle of life, or commencement of its existence. The child here, if born alive, has the *disease already developed*. In hereditary predisposition, the child is born healthy, and frequently is not affected by disease until a late period of its

life. Scrofula generally appears early in life; consumption about puberty; gout after puberty; amaurosis and cancer, especially in females, later in life, generally about or soon after the cessation of the menses.

We sometimes see an individual inheriting the constitutional tendency to disease of the parent, pass through life without ever being affected, and yet beget children who die of the old disease of the grand parent. Thus in scrofula and consumption, we often see the disease pass over one generation and re-appear in the next. It seems necessary, therefore, in many cases, that there should be some *exciting cause* to develop the disease to which a predisposition already exists, which cause would probably produce no effect upon an individual in whom there was not a like predisposition. Certain changes in the system causing excitement in organs remote from those predisposed to disease, sometimes prevent its development. Beer mentions a family in which the females, even to the third generation, became completely and incurably amaurotic; but several of the sisters became pregnant and bore children; and all of these escaped. The constant irritation or excitement of the uterus, acting as a counter-irritation to the affection in the retina, seems here to have been the cause of exemption.

Although many cases of hereditary predisposition require some exciting cause to produce disease, there are instances where the predisposition exists in organs whose *mere development*, in common with other parts of the body, *necessarily* produces disease. As in individuals with malformation of the ribs and sternum, when puberty approaches, and the organs, particularly those of the chest, expand, the lungs and heart are pressed upon by the surrounding hard walls, their development is impeded, and disease necessarily results. Another instance of this kind, which we not unfrequently meet with, is phymosis from congenital malformation of the prepuce. The opening in the foreskin is extremely small, but still large enough to allow the urine free passage during the early part of life—but later, as puberty advances and the glans penis is developed, and the secretions become more abundant, the preputial orifice is too small to allow them free passage, becomes irritated, and, if not soon relieved, a violent inflammation of the whole penis is the result, which is only to be cured by dilating the opening in the prepuce, or by circumcision. We have seen as severe cases of phymosis arising from this cause, as from gonorrhœa or syphilis.

It is supposed by some naturalists, that only congenital varieties or peculiarities of structure are transmissible, and therefore, that no individual can inherit an infirmity or tendency to disease, whose parent or grand parent was not *born* with the same infirmity.

Dr. Pritchard has laid it down as a law of nature, that connate varieties of structure are apt to appear in the progeny; but changes produced by external causes, terminate with the individual, and have no influence on his descendants. *This* is no doubt correct as applied to the *majority* of cases, but there are many exceptions to it in the transmission of tendency to diseases. We see scrofula and consumption often produced in inhabitants of warm, residing in cold climates, from external

causes alone ; and Brown and Wall assert that children born of such parents are very liable to die of the same diseases, or as much so as when the disease of the parent is inherited.

Combe thinks that the offspring is influenced by the state of the parents at the time when existence is commenced in the embryo, that it is not necessary that there should be any organic derangement to affect the offspring, but that a mere temporary excitement of certain organs, of the brain, for example, of the parent, at the time when the child is begotten, will produce corresponding results in the brain of the child—and it is owing to this fact, he maintains, that children of the same parents vary so much in intellectual powers. Children born early in life, he thinks, have less intelligence and more physical strength, than children of the same parents born at a later period ; because in men, the animal faculties are most active early in life, and the intellectual later. If it was clearly established that the first children *were* the least intelligent, this would certainly be an ingenious way of accounting for it ; but this cannot, we think, be proved. On the contrary, we often see children begotten by fathers in their young days, excelling, intellectually, children of the same father born at a much later period of his life.

We do not believe that a mere temporary excitement of an organ in the parent, will be transmitted to the offspring ; but it is very possible. when this excitement of an organ is continued until its structure is altered, as in accidental consumption, scrofula or insanity, that the peculiarity *may* be transmitted, and thus a disease originating entirely from external causes, be continued to successive generations by hereditary predisposition. A very interesting question connected with this subject, is the following : Does the offspring derive its character morally and physically from the father or mother, or equally from both ? From many facts observed among animals, it appears to us that the peculiarities of the father, more frequently than those of the mother, are shown in the progeny. In the mule, for instance, we have the head, long ears, and general appearance of the ass strongly marked, the size only being like the mare ; whilst the bardeau, or offspring of the stallion and ass, is said to resemble most the horse, and has short ears. Black rams are said almost certainly to beget black lambs, and are, therefore, not generally allowed to exist in flocks of sheep.

A still more remarkable instance of the peculiarities of the male being transmitted to the offspring, is the following :—A farmer in the west of Pennsylvania, fond of trying experiments for the improvement of his cattle, thought his breed of cows would be very much improved by crossing them with the buffalo. He accordingly procured a buffalo bull, and had his best and largest cows covered by him. They conceived, became pregnant, and went the usual length of time, but when parturition came on, *they all died in labor*, in consequence of the large heads of the buffalo's calves being unable to pass through the pelvis of the cows. The cross breed was afterwards obtained by putting the common bull to the buffalo cow ; but the progeny have resembled the common cow more than the buffalo.

According to the present generally-received notions of conception and generation, that the ovum and all the parts going to produce the foetus are furnished by the female, and that the male semen acts only as a stimulus or vivifying principle to this ready-formed matter; how is it that the offspring *ever* resembles the father? Yet this is not only true in the instances above mentioned, but the male has been known not only to produce his likeness in his own progeny, but to influence children not yet conceived, and to *be begotten by another father*. Huit relates the following well-authenticated experiment, made in the zoological garden of London. A common mare was put to a quagga, conceived, and had a colt striped like the father and otherwise resembling him. She was then taken away and put to a common stallion; conception again took place, and in due time a colt was born; but *this colt* was also striped like the quagga, her first husband.

It is also stated that if a young pointer slut be lined, and have pups for the first time by a poodle dog, and the next season be put to a thorough-bred pointer like herself, some of the pups from this latter union will have long hair and resemble the poodle who was the father of her first litter.

These curious facts in generation cannot, we think, be satisfactorily explained by any of the present theories of generation.

Although the offspring most generally resembles the father, yet it often bears a strong likeness to the mother, and almost always resembles her in some of its parts. Therefore, to produce a perfect animal, Huit thinks that the mare should be as carefully selected as the stallion, in which case the colt *never fails* to be good; and Combe, in his chapter on hereditary qualities, says, "I am not acquainted with a single instance in which the moral and intellectual organs predominated in size in both father and mother, in which all the children born of them, did not partake of a moral and intellectual character, differing slightly in *degrees* of excellence, one from another, but all presenting a decided predominance of the human over the animal faculties. If we have, then, a peculiar development in both father and mother, the offspring will almost certainly inherit the peculiarity. If the peculiarity exist only in the father, it is still very apt to inherit it; but if it be only in the mother, it may be transmitted to the offspring, but with no very great certainty." The great French general, Napoleon, seems to have resulted from a union of this kind, where both parents had particular qualities equally developed. Sir Walter Scott says, "the father of Napoleon possessed a handsome person, a talent for eloquence, and a vivacity of intellect, which he *transmitted* to his son. It was in the midst of civil discord, fights and skirmishes, that Charles Bonapart married Letitia Ramollini, one of the most beautiful women of the Island, and possessed of a great deal of firmness of character. She partook of all the dangers of her husband during the years of civil war, and is said to have accompanied him on horseback on some military expeditions during her pregnancy with the future Emperor."

The mother has perhaps more influence in forming the future character

of the child than the father; for the offspring may inherit certain traits of character from him, yet it is taught, both by precept and example, early in life, almost exclusively by the mother, and the inherited qualities are exercised and developed or allowed to lie dormant, according to the condition of the qualities in the maternal teacher. Hence it is, that we see pious and well-educated females, mothers of a large proportion of distinguished men. Washington, according to his biographers, is an example of the effect of female education; an excellent and cultivated woman herself, Mrs. Washington is said to have devoted herself to the cultivation of that high moral character which marked all the actions of her distinguished son. Lafayette was also left entirely to the care of his mother; his father, a distinguished colonel in the French army, having been killed at the head of his regiment in Germany, before the future hero was born.

For the improvement of mankind, therefore, it is undoubtedly of the greatest importance, that females should be well educated, that their good qualities may be transmitted to their offspring; or when this does not happen, that they may, by their teaching, correct many evil propensities inherited from the father—in either case the progeny would be improved.

As regards the practical application of our knowledge of hereditary predisposition, we think it may be usefully applied to many cases of disease, which come under our treatment. Some of these diseases, we know, require an exciting cause to develop them; and knowing these causes, we have it in our power frequently to avoid or correct them. To the scrofulous, for instance, we would prescribe a mild climate, warm clothing, and nutritious and invigorating diet. To the gouty, rigid temperance, regular exercise, &c.; and so on in many other diseases, depending upon exciting causes. And even in some of those cases which become developed without the aid of any external cause, we may remedy the defect in early life, and thus prevent future disease, as in malformation of the prepuce by a simple incision, and in the deformity of the ribs and sternum, called pigeon-breast, by mechanical pressure.—*Charleston Med. Journal.*

CASE OF SPONTANEOUS RUPTURE OF THE UTERUS BEFORE LABOR.

BY THOMAS F. BROWNELL, ESQ., SURGEON TO THE SALFORD WORKHOUSE.

M. A. G——, aged 28 years, was of rather short stature, well proportioned, and had a healthy appearance. She had been married about eight years. In ten months subsequent to marriage, after an ordinary labor of about nine hours' duration, she gave birth to a full-grown female child, which lived about four months. Soon after labor, which I understand was quite natural, she was seized with convulsions, followed by delirium, &c., which, continuing for a week or ten days, subsequently resulted in an attack of puerperal mania, for which she was afterwards admitted into the Manchester Workhouse. Here she remained about two months, and, as no improvement had taken place, was then sent to Lancaster Asylum, whence, having been confined seven or eight months,