

HEREDITARY TRAITS.



NO other department of human research are there so important and, in some respects, revolutionary changes taking place at the present day as are observable in the attitude of men of scientific light and leading towards the consideration of questions appertaining to Heredity. "The old order changeth, giving place to new," is a truth that is, of course, ever being realised in all human affairs. But the real pathos of the truth has not for many a day been more powerfully demonstrated—at least, in the domain of scientific knowledge—than with regard to the latest discoveries in this field. We shall presently refer to one of the most important of these discoveries, which, because of its significance, has been appropriately termed "the new gospel of evolution." Still, whatever problems arising out of this great and complex subject Science may be able to solve, there are several preconceived notions relative thereto which have become so deeply rooted in the popular mind that, in all probability, it will take a very long time ere these can be finally dislodged to give place to new and, perhaps, almost diametrically opposite theories. And until these popular notions are dissipated, even though they should eventually be proved to be inaccurate and unscientific, they are nevertheless worthy of some consideration and respect.

One such notion, for example, is that the continuity in the hereditary link or chain may be lost—at all events, it may have so far disappeared as not to be apparent—and yet restored anew, in much of its original force and *vraisemblance*, in the person of some family representative shot forth from a branch far down in the genealogical tree. Especially with regard to the transmission of *physical* bequests does this idea obtain; for, as a rule, people are more concerned about the quality of the physique they have inherited than with the mental or moral character—rarely apprehending how much the one is involved in the other. Naturally more anxious to discover and, if possible, eliminate any physical taint that may run in the blood, people, speaking generally, seldom give that attention to those characteristics which may have distinguished or disgraced their "line" in the past, and which may, in themselves, do the one or the other again; for history repeats itself no less in the individual and in the family life than in the life of the community or of the nation.

Another common notion which has long prevailed is that the hereditary impulse or *momentum* imparted to the chain of descent—i.e., the characteristics of the mental or physical bequest—transmitted by the *male* progenitor, is much more pronounced and palpable, and therefore more likely to survive, than that of the *female* ancestor. Especially is this thought to

be so in respect to the mental bequest, whether good or bad. So that even in the power of transmitting to future generations the natural characteristics of our race, it would appear to be a question of "the fittest," and, as in other matters, that the well-known dictum still holds—the gentler sex is evermore the weaker! Statistics bearing on various aspects of the case might, however, be adduced to prove the fallacy of such a notion; for, after all, it may only be one of those stupidly unkind aspersions, amounting almost to libel, to which the character of the fair sex is constantly being exposed. The prejudice is, nevertheless, a prevalent one, and is merely referred to on that account.

But the subject of heredity is so little known, in the popular sense, though the investigations of Darwin, Weissmann, Wallace, Galton, Romanes and others, have of late years opened up quite a new continent of thought that even such notions as these may sooner or later be entirely dissipated as the idlest of fancies—the very "stuff that dreams are made of." Indeed, to refer to Weissmann's recent discovery—what has hitherto been regarded as an absolutely incontrovertible theory of heredity—viz., the transmission of physical mutilation and of mental qualities—a theory which had even Darwin's *imprimatur* to give it authority—has just been shaken to its very foundation, if the superstructure is not yet quite demolished by this daring German scientist.

The purpose of the present article is, however, not to discuss the *pros* and *cons* of such vital questions as those indicated, but rather to cite some specially interesting cases that have come under the observation of the writer, illustrative of the homelier theories of heredity to which many orthodox persons may be disposed still to adhere, in spite of all that the scientists affirm—viz., that the "Old Adam" in average mankind is ever asserting himself anew, and that he will probably do so to the end of the chapter; that like produces like all the world over; and that, in fine, "every man born into the world is under the dominion of his ancestry," and can no more free himself from that dominion than he can elude his shadow!

What seriously hampers inquiry after the truths of evolution and heredity is the difficulty of obtaining, for comparative purposes, those accurate data and accumulative statistics which obviously constitute the essential factors for any reliable basis of calculation. In investigating animal or plant life, with its more or less ephemeral continuance, this difficulty is of course encountered to a large degree; but it is quite insignificant to that met with when applicable to the human species. For in the latter case it is especially necessary that several continuous generations should be brought, as it were, *en evidence*, each generation contributing its representative or non-representative

example before a complete set of *facts* can be procured to prove or disprove how far and wherein any principle or power of heredity operates.

Notwithstanding this material difficulty, it has been pretty well recognised by experts that while, on the one hand, such unhappy bequests as insanity, dipsomania, thievish and homicidal propensities, etc., are transmitted with evident facility from generation to generation in families where these taints exist—and sometimes, indeed, without a break in the chain of descent—on the other hand, high moral and mental endowments are not so easily perpetuated, if they have not a struggle for existence in the process of transmission.

In other words, it is to be inferred that for every single "gift"—of true genius, for example, as abnormal intellectual force is sometimes defined—bequeathed to a family line, a score of unfortunate tendencies such as those indicated constitute much of its portion, recalling the old Italian proverb: "*For every angel—twenty imps!*"

Very few examples are on record where the "divine spark" has shone forth in a pre-eminent degree in more than one, or at most two, representatives of the same family; whereas, cases could be multiplied almost *ad infinitum* where mental and physical taints, with their darkening and blemishing effects on the lives that exhibit them, are known to have been perpetuated from sire to son, even beyond the fourth and fifth generations, with a force and directness that vividly recall the lines of one of the profoundest observers of human nature that ever lived:—

"The evil that men do lives after them,
The good is oft interred with their bones."

This is, of course, but another rendering of the world-old dictum that "Nature is conservative in what mankind needs most, and liberal in what mankind does not need at all"—a dictum capable of an almost universal application. Especially is it applicable to this deeply-interesting branch of the subject of heredity.

There is a somewhat popular belief that diamonds are, in some manner yet undiscovered, the product of a physical *agony* or throes of Mother Earth in her dark and innermost recesses. So, too, might genius be said to be the outcome—the crystallised product or expression—of those ever-recurring national or social crises in the history of our race. And although such crises invariably bring forth their plentiful harvests of evil, still, the emergencies they create summon forth at the same time men whose latent powers only require to be stung, as it were, into life and action in order to bless their day and generation, and endow mankind with the bequests of their genius. Thus, for example, did Germany acquire its Luther, Italy its Savonarola, England its Wesley, and Scotland its Knox. Thus, too, was the cosmopolitan Shakespeare brought forth, and with him the Spensers, Raleighs, and men of like heroic mould. Thus, also, was utterance given to Robert Burns to sing, in inimitable fashion, of the coming emancipa-

tion of the age in which he lived from the hypocrisies, the shams, and the "inhumanities" that smothered its life and held in yoke its true liberty. With these examples before us, and many others that might be referred to with equal aptness, is it, therefore—and the question is a most significant one—that, because genius is, as a rule, born into the world in circumstances of unusual and often painful stress—*i.e.*, under conditions of abnormal social or national life—it lies *outside* the operation of the laws of heredity, and is quite independent of them? The question is at least worth pondering; but a very suggestive comment upon it is to be found in the fact that the mental *vis* of men of supreme genius almost invariably dies with the possessors: that is to say, it has no inherent conditions of continuance, though a dash of it is sometimes transmitted to the immediate descendants. The D'Israelis in literature, the Keans and Matthews—fathers and sons—in histrionic art, are, of course, exceptions to the general rule. But it is the common destiny of men of superlative genius, that as with themselves the "divine spark" was born and in themselves shone forth, so with themselves it dies out and is no more!

It is a serious matter to be under the despotism of one's ancestry—the worst of all forms of tyranny, surely, mankind has to suffer. To be under the mastery of inherited dispositions which are regarded as unhappy, and be unable to throw off the ever-galling yoke, however sorely we strive to do so, is indeed an affliction! The progress of scientific discovery may, perhaps, give us fresh light and hope on this subject, which concerns every human being, and demonstrate to us, after the "germ plasm" has been thoroughly explored, that we come into this world untrammelled and uncontaminated by any malevolent tie or taint that may have blemished the lives of our ancestors. But till the revelation has been announced and accepted, it is perhaps safer to admit that there may be some truth in what, up till now at all events, has been regarded as a fundamental factor in heredity—*viz.*, that we are under the dominion of our ancestry in respect to the transmission in us of their characteristics. Is it possible, however, to live down or even to throw off those transmitted traits to any extent, or entirely? Generally speaking, it is not possible. But a person with very remarkable will-power may determine to *checkmate* his ancestry by thwarting his inherited dispositions, especially if these are unfortunate. This has repeatedly been accomplished. A case in point may be quoted. A lady, known to the writer, came of a *line* of dipsomaniacs; in fact, dipsomania was the family curse, and had been so for several generations. Wisely apprehending the evil inheritance, she bravely confronted it, and, by the exercise of will, in time overcame its power. After a long and useful life, though with its struggles, she died the victor over an *inherited vice*, and her children bid fair to emulate her heroic example!

In another case where insanity was "the shadow of the line," and had exhibited itself in at least three successive branches of the family, the constant exercise of

the will-power to thwart the evil resulted in so far taming the madness as to enable the person tainted to live a useful life, and die a peaceful and even a noble death. In insanity will-power is ordinarily a *minus* quantity, and, therefore, it might be said to have had little or nothing to do, in this instance, with the cure effected. But, as a matter of fact, it had much to do with it. The person referred to—a man of excellent education and social position—determined when but a youth to throw off the galling yoke, and by so shaping his life, and trusting in a Higher Power to shape his life wisely and well—excepting a few trifling eccentricities observable when health was below par, he lived and died a sane, a successful man. And, speaking generally, we are all more or less in a state or condition of domination, in all hereditary respects, by our ancestry: we are, as Shakespeare's fine line renders it—

"Subdued to what we work in, like the dyer's hand."

Physically, the fact is unassailable. For, have we not all been familiar with the common *family likeness* that has been transmitted, more true to nature than even the camera could copy it, to representative members; even of the third and fourth generations?

The family nose, eyes, feet, its gait and carriage, habit and tricks of speech, and even its distinctively characteristic handwriting, not to speak of many other "traits" peculiar to itself, might all be adduced in evidence in numerous examples of that remarkable uniformity of physical bequest which is the inheritance of all families. The writer knows, for example, a lame father who has two *lame* children, afflicted from birth. In another example, a brother and sister are afflicted with a troublesome "stutter" or "stammer" of speech. So were their father and an uncle. It is apparently an inherited family affliction. It cannot in this instance be accounted for by reason of force of example, for the children never saw either their father or their uncle.

Not long ago, a gentleman was introduced to two young ladies whose surnames he did not hear. After they had gone away, he remarked to a friend how very like Burns, the poet, the ladies were—especially about their dark, luminous eyes! To his amazement, he was told next day that the ladies to whom he had spoken were actually descendants—grand-nieces—of the great Scottish bard! The same light that shone in his eyes a century ago has not yet died out, but still sparkles in the eyes of his descendants!

Mental or moral dominion is, however, quite another matter. Wherein and how far that dominion exists, and what are the subtle evolutionary laws that operate upon and influence its transmission suggest a subject that would lead us too far afield at present. But the point is just here: that once having apprehended the precise inheritance of his ancestry, it is the duty of every responsible individual to endeavour either to add to its value, if the inheritance be a worthy one, or if, unhappily, it be an unworthy one, to blot out as much of its unworthiness as possible, so that in handing the inheritance down to his successors, it may become "small by degrees, and beautifully less!"

And improved conditions of life and education, together with that self-discipline which is one of the highest objects of education, all are in some degree "aids" to this end, and such aids are happily becoming more and more—though the process is naturally a slow one—the inheritance not of the few, but of the many.

The transmitted characteristics of animals, especially of those belonging to the domesticated class, opens another wide and valuable field of inquiry into the subject of heredity. Many remarkable traits in their physical and mental dispositions (so far as these representatives—the aristocracy, in many respects—of the lower creation can be said to possess *mind*) might be recorded to good purpose. The companionship which happily exists to a great extent between the human race and the more homely classes of the brute creation, as may be witnessed, for example, in the bond of *bon camaraderie* between dogs and their owners, affords ample opportunities for observing the dominant traits of animals, and numerous instances could, no doubt, be cited to prove that such traits are sometimes continued in the same *line* for several generations, and are, generally speaking, subject to the identical laws which are applicable to the human species. The following authenticated examples of pronounced hereditary disposition in the canine race are worthy of record:—

A farmer in Arran owns a dog about three years of age, known to be one of the most inveterate poachers uncaught by the constable and unsentenced by the sheriff. "Rover" is a collie of the kind that used to delight the heart of Hogg, the Ettrick shepherd: as quiet, meek, intelligent-looking an animal as ever obeyed the word or sign of its master. A better runner after the flock was never owned by shepherd, for Rover can perform a miracle of work within the most wonderful limits of time. In short, he is as faithful and useful a dog as ever yelped to do service. Nevertheless, Rover has the poacher's proclivity developed in an abnormal degree and in a remarkable manner. The feature of the proclivity, however, is in the way in which the dog goes about his contraband business. He would not forsake his duty, or what he conceives to be his duty, for the finest "puss" that ever scampered over hill or down dale. Nothing "game" in the world could tempt Rover to forsake the charge under his controlling eye. At work, he is the very embodiment of canine fidelity: the incarnation, *apparently*, of every canine virtue. But Rover has an inherited vice, and in the art of poaching, where it finds its scope, he is probably without a rival in the canine world. Rover's vice, or secret sin, is indulged in after the following fashion. Let us suppose he accompanies his master for a stroll or turn, with no particular business on hand. Suddenly a hare darts across the path a few yards in front, and is off for dear life in a moment—is already a hundred yards away. "Way, now, Rover! S-s-see to it!" shouts the farmer, and Rover bolts at the command with the most evident alacrity and delighted zeal, but, to his owner's disgust, going apparently in quite an opposite

direction from that taken by the terrified rodent. The hare rushed madly *this* way; the dog seemingly pursues *that* way, leaping and yelping in a half-demented sort of fashion, in spite of the shouts and entreaties of his much-disgusted master. What is the meaning of it? Is the dog on another scent? Or is he only an excessively stupid creature, and has mistaken the motion of yonder grass-tufts for something which he "thinks" must be hunted down? Not a bit of it! But, whatever the reason, not all the ejaculations of the irate farmer, shouted in the most expressive accents of a rough-and-ready Gaelic vocabulary, can induce that dog to turn back and "seek out" the game which he has apparently allowed so easily to elude him. But he is "in it," all the same! He is playing a little game to-day on his own account.

As "Father Pelican" in *Falka* might say, Rover wants that hare badly, and, *mirabile dictu*, he has run it down in less time than the fact can be narrated here, and has already given it that sharp quick shake which breaks the quivering creature's vertebræ in so scientific and perfect a manner that even the most humane vivisectionist might envy the skill. With a few vigorous scrapes of the dog's strong sharp fore-paws a hole is rapidly scooped out in the ground, sufficiently deep to conceal the now limp and motionless quarry. This done, the body is hurriedly covered over with the mould, both fore paws and hind feet doing the sexton's work, and in half a minute everything is *in statu quo*, though, alas! poor puss is *non est*!

With a few bounds Rover is again within hail and sight of his ill-natured master, and *taking a wider circle than usual*, at length approaches him with a quasi-vexed and unhappy look in his almost half-human eyes, as much as to say: "Well, sir, why didn't you catch it yourself? I'm very, very sorry, but—well, better luck t'ye next time!" And with penitential steps the dog follows his master at a safe distance, who presently forgets all about the incident. In a short time afterwards, while the master is enjoying his mid-day meal by the "ingle-neuk," Rover is banqueting by the hill-side—both on the principle of *chacun à son goût*! Having watched his opportunity, the dog actually retraced his steps to where the hare lay buried, disinterred it, and devoured as much of it as he felt was good for him.

It has to be explained that this dog had but recently been acquired by the farmer in question, who, therefore, had not had sufficient acquaintance at the time of this incident to understand the dog's characteristics and "little ways," and so detect his wrong-doing. He simply believed Rover to be a crassly, incorrigibly stupid dog in the matter of hare-hunting. But he was amazed to be informed very soon afterwards that it was Rover's way always "to go contrary" when he had an eye to a splendid "feed," and, moreover, that the same characteristic was known to have exhibited itself in at least three generations of Rover's ancestry, all the breed having been inveterate poachers after this original method.

In a word, *Duplicity* is the inheritance of poor Rover, and although the force of example and the circumstances of his environment might be said to have had something to do with the development of the trait, the fact that it was the feature of the character of his sires rather disposes to the opinion that the instinct or intelligence that thus exhibited itself is much more of an hereditary bequest than aught else.

Another striking instance of hereditarily-acquired mental faculty in a dog may be mentioned in this connection. Like Rover, Grip was of the collie breed, but came of a more reputable line. The family "failing," in this case, however, leaned to virtue's side, for Grip and all his pedigree were incontinently fond of music. They were the Handels, the Bachs, and Beethovens of *bow-wowdom*! But in Grip the faculty seemed to have reached its climax. For certain musical instruments he had a natural and very proper aversion. A barrel-organ, for instance, he instinctively despised, and woe betide the legs of the unhappy organ-man whom Grip ran against in his haste to get past and beyond hearing of his obnoxious noise. Even a military brass band passing along the streets seemed somehow to jar upon his sense. A piano, if well played, he could tolerate, so long as the player could tolerate Grip's original accompaniment; and a concertina would sometimes move him strangely, sending him into a sort of half-demented tantrum.

But to Grip the violin was the king of musical instruments. Its music seemed to enchant him powerfully, like a voice calling to him from another sphere. "Orpheus with his lute" did wonderful things of old, but he assuredly could never so move a dumb animal as the tones of a well-fingered violin influenced Grip. Under the spell of its music the creature's eyes glowed and radiated as with all the colours of the rainbow; his tail would palpitate in such a manner as if it were trying to dance to the playing, or, maestro-like, as if beating time to some invisible orchestra. Then, in the depth and madness of it, he would lift up his strange uncanny voice, and would so howl out his pent-up feelings of joy that he at once brought down the house and—stopped the fiddler's playing.

On making careful inquiry into the history of Grip, it was ascertained that his grandsire had lived for eleven years as the "dowg" of a Scottish farmer who had been passionately fond of the violin, and by whom the creature had been taught to respect that instrument; and that his own sire had likewise been brought up under the influence of its strains, and had also been trained to regard them. It was thus "in the family" to be familiar with the violin and its music which, in Grip, amounted to something like a semi-human fondness or passion. How is the continuance of the trait to be accounted for? Is it merely an accident, or does the *fact* suggest yet another unwritten chapter in Heredity?

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