CAN
PHYSICAL CONFIGURATION
AND
ACQUIRED HABITS
DESCEND TO OFFSPRING?
However difficult it may have been found to classify and arrange the different kingdoms of nature and however arbitrary and defective may be some of the modes of dividing and subdividing the vegetable and animal kingdoms, there is a limit at which we arrive beyond which there is no difficulty in ascertaining the boundaries which nature herself has marked out.

When we arrive at species among plants and animals we find that coeval with creation there were established laws which serve to keep separate and prevent the possibility of admixture or confusion among the different products of organized nature.
Each species is provided with the means within itself of perpetuating its own kind by the constantly succeeding reproduction of individuals stamped with the characters typical and distinctive of the species to which they belong.

These long lines of descent by which the animals and plants now existing are presumed to have been transmitted from the original individuals placed at first upon the earth have also been maintained distinct and separate through all past time. They have never been allowed to diverge towards each other so as permanently to mix and get confused; for if any divergence took place and a new individual was produced uniting the characteristics of two separate species, Nature provided against the transmission and perpetuation of such an anomaly by depriving it almost entirely of the power of reproduction.

Thus Hybrids are only temporary existences living only for a time and for themselves. Not capable of representing a line of succession which might constitute a new species. Species therefore may become fewer by the dying out.
out of their representatives without descendants
being left to reproduce them.

This extinction of species has been of
frequent occurrence if we may judge by the
indications recently discovered of the former
existence of plants and animals not now
extant. But although we may presume the
species now existing to be fewer in number
than they were at the beginning of time, and
although the tendency to their becoming still
fewer is open to the force of circumstances
called accidental, yet there is to all appearance
no possibility of this being counterbalanced
by the creation or institution from those now
existing of new species since the barriers
opposed to such an occurrence are insuperable.

But it is not always an easy matter
to determine the species to which organised
beings belong. The typical characters by which
they are distinguished are liable to considerable
modifications from the force of external and
internal circumstances. Often varieties of
one species may come to present greater dif-
ferences in external configuration and
appearance.
appearance than are to be found between individuals of distinct but nearly allied species. So important are the deviations from the original type which plants and animals are liable to, that anatomical, physiological and psychological considerations are not alone to be trusted to in determining species. The test of propagation must be applied; and probably this is the only reliable mode of deciding the question. If the species be identical, propagation will go on freely, however great the apparent diversities may be that mark the parents; but if they belong to distinct species, the phenomena of hybridity will soon shew a real organic impediment to propagation, however similar in external configuration the parents may be.

The variations from the characters typical of the original stock generally arise under the influence of appreciable external causes and often for the purpose of adapting the being thus modified to exist under circumstances different from those which surrounded the original stock. The deviations from or additions to the specific characters of organised beings...
beings are also liable to arise in single indi-
viduals without obvious cause; and these becoming
hereditary, establish themselves as characteristic
features of permanent varieties. It is by taking
advantage of this law in the economy of nature
that breeders of animals and cultivators of plants
are able to improve the different species by re-
jecting for the purposes of propagation individ-
uals presenting variations tending to deteriorate
the stock and carefully selecting those poss-
essing qualities calculated to enhance its
value. But for that care or for the continued
influence of modifying circumstances, such
temporary deviations from the typical character
would soon disappear and the original specific
and characteristic features again present them-
selves. This is seen in a remarkable degree
among domestic animals. In them the
external aspect becomes remarkably changed
and their habits and instincts superseded
by the care and ingenuity of man; but if
neglected and turned loose to shift for them-
selves, after a few generations they are found
to have assumed their original appearance
and
and to have returned from necessity to the active exercise of their former instincts and habits.

Thus there is a type or model which in a state of Nature the different species of plants and animals invariably follow, and which is transmitted without deviation from generation to generation.

From such considerations we are led to infer the existence of fixed and determinate laws regulating the operations of Nature. These may be temporarily interfered with by the force of external circumstances, but the causes of modification being removed, the laws again exercise their full influence. There is nothing fortuitous or accidental in the operations of Nature, but all events follow each other guarded by unerring and definite laws. And this must be admitted whether we are able to detect these laws or not; and because we are unable often to find them out we are not therefore entitled to ignore their existence.

Otherwise it would argue little for the faith which finite minds must exercise in reference to the effects produced by a system.
system of influence in its essence altogether removed beyond human comprehension.

All science and knowledge centres in the detection and elucidation of the laws by which the operations of Nature are conducted and regulated. In illustration of this I need not go farther than to enquire how the sex of the fetus in utero is determined? It is not for a moment to be supposed that chance or accident in the usual sense of these terms had anything to do in the determination of so important a matter. Those who think so should consider whether they are not taking a narrow view of the subject and whether they are not looking any farther than to some of the merely modifying circumstances which may slightly affect the operation of the great and general law upon which the determination of the sex depends rather than seeking for the law itself. What that law may be I shall not presume to say, although I should be inclined to look for it in some inherent difference among the Primitive
primitive generative cells of the parents. This, however, is of course mere hypothesis, but is rendered not perhaps improbable from the fact that the balance between the sexes among animals never seems to vary to any inconvenient extent. If, however, the matter were left to chance or the operation of secondary or variable causes, we might well feel some alarm lest any material alteration from the usual course might at sometime produce very serious results. Leaving this point; however, as not strictly within the scope of my paper, I may proceed to remark that the typical characters distinguishing, are not incompatible with special variations separating tribes or families; nor are these latter inconsistent with the existence of peculiarities or traits distinguishing individuals from one another.

It is a curious consideration that no two organised things or animals of the same kind are ever so precisely alike that no difference at all can be discovered. Even the simplest things which we are wont to use as patterns of their exact resemblance are never exactly alike in all
all respects: no two eggs will be found exactly alike nor any two peas. We cannot then wonder that no two human beings should so exactly resemble each other; but that some difference should be discoverable whereby to recognize the one from the other; but still how strange to think that out of thousands of beings modeled upon the same plan every one should be found to possess characteristics of its own and to differ from every other! We look upon cases of mistaken identity as curious and rare; yet we might rather wonder why such cases should not be more frequent. But with all this diversity among individuals there are still points of resemblance which are transmitted from parent to offspring, independantity of the general characters common to the species. Doubtless this affords more or less to all animals although of course it is particularly marked in the human race. Now it is an important point to determine whence and how children derive their characteristic features; whether from one or other or both parents or
from what other source.

In considering this matter we must hold in view that the offspring may be influenced in its Physical and also in its Psychical development, and that the possible sources of modifying influence rest principally with the parents. There are many things which demonstrate that Physical configuration is inherited by children from one or other parent; this is patent to ordinary observation, but the difficulty is to decide the separate influences of the two parents and the circumstances under which these influences are heightened, modified or suppressed.

The ordinary view of the Nature of the original elements concerned in generation is that the ovum of the female is the formative cell out of which alone the embryo is developed while the office of the seminal secretion of the Male is merely that of a stimulating or vivifying fluid fitted to arouse into activity the latent powers of development inherent in the ovum. This theory would leave us entirely at a loss to understand.
understand how the offspring should be so strongly imbued with the characteristic features of the male parent as we so often find to be the case.

In this view of the nature of generation we might suppose the male parent to exercise more or less of a modifying influence upon the physical and psychical development of the future being, but nothing more; since he contributes nothing to the substance or material out of which the offspring is developed. We could easily imagine how great an influence the female should have upon the progeny seeing that she not only contributes the original formative cell, but during its growth and development supplies the nutritive and plastic matter for the purpose: and, farther, as that development goes on within her body the possibly powerful influence of her mind and imagination is brought to bear upon and affect the rapidly evolving foetus.

In connection with the subject of the influence of parents upon the physical characteristics of offspring, I cannot avoid noticing here the interesting and beautiful theories lately pro-
promulgated by Mr. Orton in his two papers read by him before the Newcastle Farmer's Club.

The principal and fundamental law he seeks to establish is that the male parent gives to the offspring the organs of animal life while the female supplies those of vegetative life and the constitutional qualities. This law is found to explain many known facts and phenomena; and its existence is rendered more probable by the experiments and observations made by Mr. Orton himself. It is subject, however, to secondary laws or laws of limitation which fully explain any doubtful or seemingly exceptional cases — one of these laws is that each parent exercises a modifying influence powerful in certain cases over the set of organs supplied by the other — another (law) is that the female imbibes an influence from the male which affects her offspring by succeeding males.

These laws Mr. Orton holds to be fixed and immutable and capable of explaining all the phenomena observed in the breeding of
of Animals. — He does not admit that there is any such thing as offspring "taking after" one or other parent, as if such were a matter of indifference and subject to no law; but that the taking after is a matter of definite certainty, taking place according to the rule laid down. When any great apparent deviation from the rule takes place it is to be explained by the modifying influence of the one parent upon the organs supplied by the other; and the most frequent deviations of this kind will be caused by the influence of the male with whom the female has previously been breeding.

Examples illustrative of these laws are perhaps best found in the case of hybrids in which the organs derived from each parent can be readily discerned. For instance, the Onicile bears a much greater resemblance to its sire, the ass, in external configuration than it does to its Dam, the Onare; but its internal or vital organs, its size, temper, disposition &c. are evidently derived from the latter. Conversely the Sirny, which is the product of the Stallion and the she ass, presents
presents a remarkable likeness externally to the horse, but in internal structure, habits and disposition, it closely resembles the ass.

To account for the facts to which we have alluded, the same author suggests a theory in the economy of generation which seems fully competent to explain the facts as far as observed. He assumes that of the three layers observed to constitute the incipient embryo the outer is derived entirely from the male parent, while the inner layer is formed by the ovum of the female; the middle layer is either derived from both, or is in a manner adventitious and independent of both; holding somewhat the same relation between them that the placenta does between the mother and fetus.

Physiologists have detected the spermatogenous of the male seminal fluid attach itself to the exterior of the mature ovum, and there amalgamate with it and disappear. What then is more likely than that it is developed in the position outside the ovum into the outer layer of the embryo? — And as we know that
that the outer or serous layer is developed into the
muscular, osseous, and nervous tissues, we have
here a full and very sufficient reason why the
offspring should take after its male parent
in external configuration, while as the ovum
itself is derived from the female forming the
inner or mucous layer which is developed
into the internal organs, we have equal reason
for believing that as far as regards these parts,
the offspring must necessarily resemble
the female parent.

This view of the relative functions of
the two parents in the process of reproduction,
offers a far more satisfactory explanation of
the phenomena connected with it than could
be arrived at with the former theory on the sub-
ject, when the seminal secretion of the male
was supposed to be merely an agent suited
to vivify the female ovum which latter was
 presumed to furnish the materials for the
construction of the entire embryo. — It also
sets in a proper point of view what might
a priori have been assumed, namely, that
the male takes that prominent part in contri-
buting.
contributing to the constitution of his progeny, which his own inherent dignity and importance might have led us to suppose.

He contributes those very organs which distinguish him from a mere plant: the essential organs of animal life; those impressing his very image and the stamp peculiarly distinctive of himself upon his descendants. This gives an important significance to the pride of ancestry; for to be able to establish a descent from a distinguished individual has more in it than those who affect to despise such things may be willing to allow. For if the small parent actually transmits his own lineaments and external characteristics, these may be gratifying to the descendants of a noble ancestor.

Assuming the views of Watson to be correct, it would seem fair to infer that the offspring should be liable to inherit those diseases from the parents which affect in particular the organs derived from each respectively. That is to say, children should inherit a predisposition to diseases of the muscular...
osseous, and nervous tissue from the father, and affection of the lungs, alimentary canal, glands &c. from the mother. But actual experience by no means warrants such a conclusion; at least not without reservation and many apparent exceptions. There is however to be kept in mind the fact that the middle or vascular layer of the Embryo cannot be referred to one parent more than the other; and possibly the circulatory system and the blood itself which carries in itself the essence of most if not all disease, may be derived equally from both parents and may therefore partake equally of the qualities of the said system in both parents; so that probably the tendency to disease in offspring, as derived from one parent more than the other, is less to be depended upon than other characteristics. Admitting the possibility of Mr. Mon's Law being founded in truth, although his experiments and observations, as well as all those contributed to him by others, were in reference to their operation on the lower animals, does not analogy entitle us to assume that the same arguments will hold good in regard.
regard to their operation in the human race? That Physical Configuration is transmitted according to definite laws among domestic animals has been abundantly proved; and not only that, but the influence of interfering circumstances has been amply illustrated in Mr Otton's papers. We may presume that the same influences exert the same controlling power in the human species, although of course in addition we have in the latter the effects of the mind and imagination capable of producing far more important consequences than anything analogous in the lower animals. It has been believed and probably there are good grounds for the belief that the foetus is liable to certain modifications in its development, especially in external configuration, from impressions made on the mind, or from influences arising out of the imagination of the mother. Without denying the possibility of many of the phenomena in question originating in this source, Mr Otton contends that, in the lower animals at least, such peculiarities in the offspring must frequently arise without
without imagination having anything to do with them; as for instance among fowls in which imagination can hardly be supposed to exist, and in which, besides, the offspring is not carried in utero where such impressions are usually supposed to be made. —

Whatever may be the effect of impressions taking place through the organs of sense, and producing the requisite change in the physiological nature of the mother, to affect the development of her offspring, among the lower animals of course it must be infinitely inferior to the analogous influence in the human female.

One remarkable circumstance has been so frequently observed both in the human race and in the lower animals as to leave no doubt of it; and which Mr. Citon has set down as a law in the economy of reproduction. — It is the influence which a male by whom a female has had issue has upon the future offspring of the same female by other males. — This was set down to one of two causes; either an impression made upon the mind of the mother or a certain intes-
inoculation of her blood or system of something received through the fetus in utero derived by it from the male parent. But Mr. Orton objects to both these theories, and suggests as a more likely one, that the seminal fluid of the male is capable of imparting an influence to the ova not so far advanced, as the one or more it fecundates; which influence although it cannot fecundate the ova not sufficiently matured, it impresses them in such a manner that when afterwards fecundated by the semen of another male, they present the outward characteristics of the first male.

It has been often observed that widows having children by a second marriage, these children have strongly resembled the former husband himself. Also married women have had illegitimate children who bore an unmis-takable likeness to those of their husbands.

This is readily explained by Mr. Orton's hypothesis, and the remarkable facts brought forward in support of it should be considered when personal resemblance is taken into account in medico-legal cases regarding paternity.
But although cases may be so explained yet there are many where peculiar features present themselves in the offspring which apparently admit of no explanation, excepting the influence of the mind of the mother. And it is by no means opposed to our views regarding the mysterious power which mind has over matter to consider that the mind and imagination which we often see to exert such a powerful effect upon the body should also exert an influence upon the fetus in utero: when to all intents and purposes it may be regarded a part of the Mother's system.

Of the power which the mind may exert upon the body, even to the production of physical changes, there is no want of abundant proof.

I think there is good reason to suppose that every tissue, function and organ of the body is more or less capable of being affected by the operations of the mind. All are aware of the influence which violent mental emotions or absorbing affections may produce upon the functions of organic life. Sudden intelligence of engaging interest will suspend digestion and, for the time,
subdue the keenest appetite for food: Violent rage or grief has been frequently known to cause such an alteration upon the mammary secretion as to produce deleterious and even fatal effects upon the sucking child. And although in the latter case the connexion between the affection of the mind and the alteration upon the milk become so conspicuous on account of the effect it produces upon a separate being, yet we cannot doubt that the mind exercises a similar control over all the other organs and their functions, notwithstanding that the effects may not be so manifest from their being confined within the body of the individual.

Every one knows the effect upon the general health of long continued exciting or depressing affections of the mind. While these, not necessarily violent in degree, produce habitual conditions of certain organs which ultimately settle into permanent changes, the more violent disturbances of equanimity produce alterations upon the solids and fluids which could not be otherwise than transient without the most serious results to the health of the body.
It is interesting to observe the different effects produced upon the body by the different affections of the mind, and also by the different degrees of the latter from the least possible feeling of curiosity to the most terrible suspense and apprehension: from the smallest degree of sorrow to the most profound grief: from the slightest displeasure to the greatest rage: from simple dislike to the utmost abhorrence, disgust and hatred: from the mere liking to the most violent love and admiration. All these and whatever other passions and affections the mind is subject to, produce mysterious effects upon the structure and functions of the body. If a tingling suffusion of the countenance result from a feeling of shame: if terror will contract the cutaneous surface so as to produce a ghastly pallor and cause the hairs of the head to stand erect; if acidity, flatulence, constipation and other signs of dyspepsia; if diaphoresis, diuresis and even diarrhoea may result from intense fear, anxiety or apprehension; if anger or disgust may occasion jaundice and sudden rage or grief may impue poison into the milk of the nurse;
if such phenomena are subject of common observation, we cannot hesitate to allow mind to be capable of exciting a powerful though mysterious influence over matter. These are instances of the effects of external circumstances upon the mind reacting upon the body.

But a curious part of this subject is the power of imagination upon the body. This is often exemplified in a wonderful degree in cases of hypochondriasis and hysteria. From the intense and continued concentration of the mind upon a certain point doubtless more than the mere appearance of disease has been produced, and a real alteration of structure developing at length the disease which at first was only simulated and imaginary. Again many seemingly wonderful cures appear to be effected in hypochondriacal and hysterical cases when the system has been released from the straitdom of a diseased imagination.

Since, then, we see so great control capable of being exercised by the immaterial part of our nature over the physical, it is surely not too much to expect that that portion of the
maternal parent destined to be at length developed into a new being should also be capable of being influenced by mental causes operating upon the mother. The changes I have been speaking of as being produced in the fully formed organs, are usually spoken of as being "functional"; but I believe it cannot be demonstrated that they may not be really organic in their nature. For some change in the secreting cells of an organ might reasonably be supposed to take place before so great an alteration in its secretion could be effected as we see in the case of the mammary secretion when the child dies of convulsions after nursing of the altered fluid. But however explained, certainly the effect of mental causes upon the physical constitution of the maternal individual are sufficiently wonderful and undoubted; and, if so, we ought to be ready to admit that the same influences ought to produce even more marked effects upon the rapidly evolving structures of the embryo, which are in such a state of plasticity as to lay them open in an eminent degree to the operation
opinion of whatever influences we can suppose capable of affecting them. Nor are there wanting many recorded instances of remarkable effects produced upon the fetus by strong impressions made upon the mind of the mother either during coitus or pregnancy.

These have been principally peculiarities affecting the external configuration of the child; and it has always been subject of popular belief that children in utero could be impressed in this way.

We may then, I think, safely conclude with Mr. Gilton that the male parent is especially concerned in conferring the external parts and configuration upon the progeny; but that this law is subject to several disturbing influences, the principal of which may be stated as: First, the modifying power of the mother's system upon the parts supplied by the father; Secondly, the force of impressions upon the mind of the mother, either acting from without or originating in her own imagination; and, Thirdly, the influence short of sepsidation which the seminal fluid
fluid of another male with whom she has had
previous intercourse may have left upon the
ova of the female.

The derivation of the Physiological quali-
ties in offspring is by no means easily tra-
ced: And, indeed, it is difficult to bring facts
to bear upon the point so as to indicate the
existence of any positive laws regulating the
development of these qualities. Researches
among domestic animals indicate clearly the
transmission to the progeny of not only the
natural habits and instincts of the parents
but also of acquired habits, temper and disposi-
tion, and also of the tone and quality of the
vital organs and tendency to disease.

But the respective influence of the two parents
in conferring these qualities upon the offspring is
not readily discerned. Various hypotheses might
be hazarded but actual proofs are almost wanting.

In the lower animals there are indica-
tions of the existence of Laws regulating this
part of the animal economy as well as that of
their physical development. For in the exam-
ple I have already alluded to, of the Hybrids
between
between the Horse and the Ass, it is observable that the Mule which bears so strong a resemblance to the Ass externally, is characterized in temper, disposition and propensities by a likeness to the sire or maternal parent; while the Foal outwardly so like the Horse, is comparatively a useless animal, since it inherits the viciousness and sluggishness of the Ass.

If the laws regulating the Psychical qualities were analogous to those which we have seen to precede over external configuration, the matter would be simple, notwithstanding the complications which might arise from secondary influences.

But observed facts are hardly reconcilable with so simple a view of the subject. For although the brain is one of the parts most probably derived from the male parent, yet there is good reason for supposing that the two sexes among the offspring are differently influenced by the two parents in regard to psychical constitution. It is observable that in families we can detect every variety of similarity or dissimilarity to one or to both.
Both parents; so that by observing children, we should not be able to say how they stood related (as a rule) to their parents in regard to their mental and moral development.

The possibilities of the case are various: it is conceivable that the male parent might confer the mental characteristics upon the progeny or that these might be due to the mother. Then it might be a joint influence of both; when possibly a display of new psychological qualities might be evolved, apparently due to neither parent, but really arising from the mixed influence of the mental qualities of both.

Whatever the fundamental law may be regarding this point in human beings, as doubtless there must be one, the modifying influences seem to be so powerful and so numerous as very much to obscure it.

Since the vital organs and their tone and quality are derived from the mother, doubtless what we call temperament will be in a great measure derived from her. And this has generally such a prominent part in
Stamping an individual that the function of the brain and faculties of the mind seem to be modified and characterized by it.

Observations upon breeding among the lower animals would seem to indicate that the female progeny tend to take after the male parent in psychical characters, and the male offspring after the female parent. The experiments of Mr. Jenner with the Muscovy ducks as noticed by Mr. Peter are very curious and interesting. Producing hybrids between the common drake and Muscovy duck, he found the male hybrids to inherit all the dulness of the Muscovy duck, while the female hybrids displayed the migratory propensities of the common drake.

It is quite possible that this may be a fundamental law, and in society adherence to it may frequently be seen. May not exceptional cases be explained by taking into account possible interfering influences?

The greater mental activity and the preponderance of particular habits and propensities in one of the parents especially at
The time of conception, or in the female during pregnancy, might so far affect the offspring, as to seem to oppose the rule. We must also take into account the force of external circumstances acting upon children after birth; and the faculty of imitation, so characteristic in all children, must be considered one of the most powerful modifying influences.

In truth it cannot be doubted but that offspring through imitation come to resemble the parent with whom they principally associate, in habits and manners; and it is possible that the results of imitation are often taken for peculiarities hereditarily transmitted.

With regard to acquired habits, there are many reasons for supposing them often to be transmitted. Among lower animals we see that habits introduced among them, are transmitted from generation to generation and come at length to be like second nature. The offspring of tame animals are tame also, or are easily tamed; and many habits amongst them being transmitted...
Transmitted to offspring are familiar to all.
It is said that the barking of dogs is an
acquired habit and is only found amongst
domesticated races; the dog in its native state
only being known to howl. The Cat in
South America has been known to lose
the "Miaulement incommodes". There are
Horses in South America which are taught
a peculiar ambling pace and the untaught
progeny of these are found to inherit the same
unnatural mode of progression. Knight
says the offspring of domesticated races in-
herit in a very remarkable manner the
acquired habits of their parents. In the
dog especially the offspring inherits the
"passions, propensities and resentments of
its family". It seems to be an established
law among animals that when placed in
circumstances different from those of their
natural state, appropriate changes are ef-
acted both in their physical and psychical
constitution to adapt them to their new po-
sition; and these alterations are not effected
merely upon individuals as such, but are
gradually
gradually introduced during a series of generations and the progeny come to inherit the peculiarities which become permanent, and remain so as long as the circumstances rendering their introduction necessary remain in force. When, however, the race is restored to its natural position, these acquired changes are lost; but as in acquiring them, it also requires the revolution of a few generations to root them out.

Thus in restoring domesticated animals to freedom and their natural haunts, they lose the habits and peculiarities which they had acquired while under the care of man. Cows have the secretion of milk and the parts concerned in its production restored to their natural state when freed from artificial milking. Dogs run wild, soon forget to bark and cats to cry at night as they do in the tame state. All variety of colour and other physical changes soon
soon disappear when animals are turned from a state of domestication.

I think all analogy entitles us to conclude that a law which we see to apply so universally among the lower animals, should also affect the human species; and I think we cannot doubt but that there is a strong tendency to the transmission of well marked acquired peculiarities, although the very powerful influence of the intellectual faculties acts as a means of obscuring and modifying the results so as to make it difficult to separate what is due to hereditary transmission from what is effected by the force of example, through the child's constantly acting faculties of observation and imitation.

There are however facts which seem to indicate the tendency at all events to the hereditary transmission of parental peculiarities.

In the first place peculiarities of
of manner, gait, modes of thinking, and acting have been observed to reappear in children where the same example of the parent in whom it originated could have no effect in consequence of absence or death.

Again we know the tendency to idiocy in the children of drunken parents; and there may, I believe, be observed in some cases a great similarity between the imbecility of the child and the helpless condition of a person in a state of intoxication; may we not consider such examples to illustrate the doctrine of which I have been speaking?

Furthermore, do we not look upon the habits and manners of a nation as the effect of the continued transmission of peculiarities gradually introduced, and coming ultimately more or less to characterize a whole people? Except thus originating...
originating, whence are national characteristics, manners and propensities to be accounted for?

In conclusion, it is said to be a law in the animal economy, that particular qualities displayed in individuals, for the first time, become perpetuated by hereditary transmission.

John A. Metcalfe.