

Chapter V.

Of Ethology, Or The Science Of The Formation Of Character.

§ 1. The laws of mind as characterized in the preceding chapter, compose the universal or abstract portion of the philosophy of human nature; and all the truths of common experience, constituting a practical knowledge of mankind, must, to the extent to which they are truths, be results or consequences of these. Such familiar maxims, when collected *a posteriori* from observation of life, occupy among the truths of the science the place of what, in our analysis of Induction, have so often been spoken of under the title of Empirical Laws.

An Empirical Law (it will be remembered) is a uniformity, whether of succession or of co-existence, which holds true in all instances within our limits of observation, but is not of a nature to afford any assurance that it would hold beyond those limits; either because the consequent is not really the effect of the antecedent, but forms part along with it of a chain of effects flowing from prior causes not yet ascertained, or because there is ground to believe that the sequence (though a case of causation) is resolvable into simpler sequences, and, depending therefore on a concurrence of several natural agencies, is exposed to an unknown multitude of possibilities of counteraction. In other words, an empirical law is a generalization, of which, not content with finding it true, we are obliged to ask, why is it true? knowing that its truth is not absolute, but dependent on some more general conditions, and that it can only be relied on in so far as there is ground of assurance that those conditions are realized.

Now, the observations concerning human affairs collected from common experience are precisely of this nature. Even if they were universally and exactly true within the bounds of experience, which they never are, still they are not the ultimate laws of human action; they are not the principles of human nature, but results of those principles under the circumstances in which mankind have happened to be placed. When the Psalmist "said in his haste that all men are liars," he enunciated what in some ages and countries is borne out by ample experience; but it is not a law of man's nature to lie; though it is one of the consequences of the laws of human nature, that lying is nearly universal when certain external circumstances exist universally, especially circumstances productive of habitual distrust and fear. When the character of the old is asserted to be cautious, and of the young impetuous, this, again, is but an empirical law; for it is not because of their youth that the young are impetuous, nor because of their age that the old are cautious. It is chiefly, if not wholly, because the old, during their many years of life, have generally had much experience of its various evils, and having suffered or seen others suffer much from incautious exposure to them, have acquired associations favorable to circumspection; while the young, as well from the absence of similar experience as from the greater strength of the inclinations which urge them to enterprise, engage themselves in it more readily. Here, then, is the *explanation* of the empirical law; here are the conditions which ultimately determine whether the law holds good or not. If an old man has not been oftener than most young men in contact with danger and difficulty, he will be equally incautious; if a youth has not stronger inclinations than an old man, he probably will be as little enterprising. The empirical law derives whatever truth it has from the causal laws of which it is a consequence. If we know those laws, we know what are the limits to the derivative law; while, if we have not yet accounted for the empirical law--if it rests only on observation--there is no safety in applying it far beyond the limits of time, place, and circumstance in which the observations were made.

The really scientific truths, then, are not these empirical laws, but the causal laws which explain them. The empirical laws of those phenomena which depend on known causes, and of which a general theory can therefore be constructed, have, whatever may be their value in practice, no other function in science than that of verifying the conclusions of theory. Still more must this be the case when most of the empirical laws amount, even within the limits of observation, only to approximate generalizations.

§ 2. This, however, is not, so much as is sometimes supposed, a peculiarity of the sciences called moral. It is only in the simplest branches of science that empirical laws are ever exactly true; and not always in those. Astronomy, for example, is the simplest of all the sciences which explain, in the concrete, the actual course of

natural events. The causes or forces on which astronomical phenomena depend, are fewer in number than those which determine any other of the great phenomena of nature. Accordingly, as each effect results from the conflict of but few causes, a great degree of regularity and uniformity might be expected to exist among the effects; and such is really the case: they have a fixed order, and return in cycles. But propositions which should express, with absolute correctness, all the successive positions of a planet until the cycle is completed, would be of almost unmanageable complexity, and could be obtained from theory alone. The generalizations which can be collected on the subject from direct observation, even such as Kepler's law, are mere approximations; the planets, owing to their perturbations by one another, do not move in exact ellipses. Thus even in astronomy, perfect exactness in the mere empirical laws is not to be looked for; much less, then, in more complex subjects of inquiry.

The same example shows how little can be inferred against the universality or even the simplicity of the ultimate laws, from the impossibility of establishing any but approximate empirical laws of the effects. The laws of causation according to which a class of phenomena are produced may be very few and simple, and yet the effects themselves may be so various and complicated that it shall be impossible to trace any regularity whatever completely through them. For the phenomena in question may be of an eminently modifiable character; insomuch that innumerable circumstances are capable of influencing the effect, although they may all do it according to a very small number of laws. Suppose that all which passes in the mind of man is determined by a few simple laws; still, if those laws be such that there is not one of the facts surrounding a human being, or of the events which happen to him, that does not influence in some mode or degree his subsequent mental history, and if the circumstances of different human beings are extremely different, it will be no wonder if very few propositions can be made respecting the details of their conduct or feelings, which will be true of all mankind.

Now, without deciding whether the ultimate laws of our mental nature are few or many, it is at least certain that they are of the above description. It is certain that our mental states, and our mental capacities and susceptibilities, are modified, either for a time or permanently, by every thing which happens to us in life. Considering, therefore, how much these modifying causes differ in the case of any two individuals, it would be unreasonable to expect that the empirical laws of the human mind, the generalizations which can be made respecting the feelings or actions of mankind without reference to the causes that determine them, should be any thing but approximate generalizations. They are the common wisdom of common life, and as such are invaluable; especially as they are mostly to be applied to cases not very dissimilar to those from which they were collected. But when maxims of this sort, collected from Englishmen, come to be applied to Frenchmen, or when those collected from the present day are applied to past or future generations, they are apt to be very much at fault. Unless we have resolved the empirical law into the laws of the causes on which it depends, and ascertained that those causes extend to the case which we have in view, there can be no reliance placed in our inferences. For every individual is surrounded by circumstances different from those of every other individual; every nation or generation of mankind from every other nation or generation: and none of these differences are without their influence in forming a different type of character. There is, indeed, also a certain general resemblance; but peculiarities of circumstances are continually constituting exceptions even to the propositions which are true in the great majority of cases.

Although, however, there is scarcely any mode of feeling or conduct which is, in the absolute sense, common to all mankind; and though the generalizations which assert that any given variety of conduct or feeling will be found universally (however nearly they may approximate to truth within given limits of observation), will be considered as scientific propositions by no one who is at all familiar with scientific investigation; yet all modes of feeling and conduct met with among mankind have causes which produce them; and in the propositions which assign those causes will be found the explanation of the empirical laws, and the limiting principle of our reliance on them. Human beings do not all feel and act alike in the same circumstances; but it is possible to determine what makes one person, in a given position, feel or act in one way, another in another; how any given mode of feeling and conduct, compatible with the general laws (physical and mental) of human nature, has been, or may be, formed. In other words, mankind have not one universal character, but there exist

universal laws of the Formation of Character. And since it is by these laws, combined with the facts of each particular case, that the whole of the phenomena of human action and feeling are produced, it is on these that every rational attempt to construct the science of human nature in the concrete, and for practical purposes, must proceed.

§ 3. The laws, then, of the formation of character being the principal object of scientific inquiry into human nature, it remains to determine the method of investigation best fitted for ascertaining them. And the logical principles according to which this question is to be decided, must be those which preside over every other attempt to investigate the laws of very complex phenomena. For it is evident that both the character of any human being, and the aggregate of the circumstances by which that character has been formed, are facts of a high order of complexity. Now to such cases we have seen that the Deductive Method, setting out from general laws, and verifying their consequences by specific experience, is alone applicable. The grounds of this great logical doctrine have formerly been stated; and its truth will derive additional support from a brief examination of the specialties of the present case.

There are only two modes in which laws of nature can be ascertained--deductively and experimentally; including under the denomination of experimental inquiry, observation as well as artificial experiment. Are the laws of the formation of character susceptible of a satisfactory investigation by the method of experimentation? Evidently not; because, even if we suppose unlimited power of varying the experiment (which is abstractedly possible, though no one but an Oriental despot has that power, or, if he had, would probably be disposed to exercise it), a still more essential condition is wanting--the power of performing any of the experiments with scientific accuracy.

The instances requisite for the prosecution of a directly experimental inquiry into the formation of character, would be a number of human beings to bring up and educate, from infancy to mature age. And to perform any one of these experiments with scientific propriety, it would be necessary to know and record every sensation or impression received by the young pupil from a period long before it could speak; including its own notions respecting the sources of all those sensations and impressions. It is not only impossible to do this completely, but even to do so much of it as should constitute a tolerable approximation. One apparently trivial circumstance which eluded our vigilance might let in a train of impressions and associations sufficient to vitiate the experiment as an authentic exhibition of the effects flowing from given causes. No one who has sufficiently reflected on education is ignorant of this truth; and whoever has not, will find it most instructively illustrated in the writings of Rousseau and Helvetius on that great subject.

Under this impossibility of studying the laws of the formation of character by experiments purposely contrived to elucidate them, there remains the resource of simple observation. But if it be impossible to ascertain the influencing circumstances with any approach to completeness even when we have the shaping of them ourselves, much more impossible is it when the cases are further removed from our observation, and altogether out of our control. Consider the difficulty of the very first step--of ascertaining what actually is the character of the individual, in each particular case that we examine. There is hardly any person living concerning some essential part of whose character there are not differences of opinion even among his intimate acquaintances; and a single action, or conduct continued only for a short time, goes a very little way toward ascertaining it. We can only make our observations in a rough way and *en masse*; not attempting to ascertain completely in any given instance, what character has been formed, and still less by what causes; but only observing in what state of previous circumstances it is found that certain marked mental qualities or deficiencies *oftenest* exist. These conclusions, besides that they are mere approximate generalizations, deserve no reliance, even as such, unless the instances are sufficiently numerous to eliminate not only chance, but every assignable circumstance in which a number of the cases examined may happen to have resembled one another. So numerous and various, too, are the circumstances which form individual character, that the consequence of any particular combination is hardly ever some definite and strongly marked character, always found where that combination exists, and not otherwise. What is obtained, even after the most extensive and accurate observation, is merely a comparative result; as, for example, that in a given number of Frenchmen,

taken indiscriminately, there will be found more persons of a particular mental tendency, and fewer of the contrary tendency, than among an equal number of Italians or English, similarly taken; or thus: of a hundred Frenchmen and an equal number of Englishmen, fairly selected, and arranged according to the degree in which they possess a particular mental characteristic, each number, 1, 2, 3, etc., of the one series, will be found to possess more of that characteristic than the corresponding number of the other. Since, therefore, the comparison is not one of kinds, but of ratios and degrees; and since, in proportion as the differences are slight, it requires a greater number of instances to eliminate chance, it can not often happen to any one to know a sufficient number of cases with the accuracy requisite for making the sort of comparison last mentioned; less than which, however, would not constitute a real induction. Accordingly, there is hardly one current opinion respecting the characters of nations, classes, or descriptions of persons, which is universally acknowledged as indisputable.(272)

And finally, if we could even obtain by way of experiment a much more satisfactory assurance of these generalizations than is really possible, they would still be only empirical laws. They would show, indeed, that there was some connection between the type of character formed and the circumstances existing in the case; but not what the precise connection was, nor to which of the peculiarities of those circumstances the effect was really owing. They could only, therefore, be received as results of causation, requiring to be resolved into the general laws of the causes: until the determination of which, we could not judge within what limits the derivative laws might serve as presumptions in cases yet unknown, or even be depended on as permanent in the very cases from which they were collected. The French people had, or were supposed to have, a certain national character; but they drive out their royal family and aristocracy, alter their institutions, pass through a series of extraordinary events for the greater part of a century, and at the end of that time their character is found to have undergone important changes. A long list of mental and moral differences are observed, or supposed to exist between men and women; but at some future and, it may be hoped, not distant period, equal freedom and an equally independent social position come to be possessed by both, and their differences of character are either removed or totally altered.

But if the differences which we think we observe between French and English, or between men and women, can be connected with more general laws; if they be such as might be expected to be produced by the differences of government, former customs, and physical peculiarities in the two nations, and by the diversities of education, occupations, personal independence, and social privileges, and whatever original differences there may be in bodily strength and nervous sensibility between the two sexes; then, indeed, the coincidence of the two kinds of evidence justifies us in believing that we have both reasoned rightly and observed rightly. Our observation, though not sufficient as proof, is ample as verification. And having ascertained not only the empirical laws, but the causes, of the peculiarities, we need be under no difficulty in judging how far they may be expected to be permanent, or by what circumstances they would be modified or destroyed.

§ 4. Since then it is impossible to obtain really accurate propositions respecting the formation of character from observation and experiment alone, we are driven perforce to that which, even if it had not been the indispensable, would have been the most perfect, mode of investigation, and which it is one of the principal aims of philosophy to extend; namely, that which tries its experiments not on the complex facts, but on the simple ones of which they are compounded; and after ascertaining the laws of the causes, the composition of which gives rise to the complex phenomena, then considers whether these will not explain and account for the approximate generalizations which have been framed empirically respecting the sequences of those complex phenomena. The laws of the formation of character are, in short, derivative laws, resulting from the general laws of mind, and are to be obtained by deducing them from those general laws by supposing any given set of circumstances, and then considering what, according to the laws of mind, will be the influence of those circumstances on the formation of character.

A science is thus formed, to which I would propose to give the name of Ethology, or the Science of Character, from {~GREEK SMALL LETTER ETA WITH PSILI AND PERISPOMENI~}{~GREEK SMALL LETTER

THETA~}{~GREEK SMALL LETTER OMICRON~}{~GREEK SMALL LETTER FINAL SIGMA~}, a word more nearly corresponding to the term "character" as I here use it, than any other word in the same language. The name is perhaps etymologically applicable to the entire science of our mental and moral nature; but if, as is usual and convenient, we employ the name Psychology for the science of the elementary laws of mind, Ethology will serve for the ulterior science which determines the kind of character produced in conformity to those general laws by any set of circumstances, physical and moral. According to this definition, Ethology is the science which corresponds to the art of education in the widest sense of the term, including the formation of national or collective character as well as individual. It would indeed be vain to expect (however completely the laws of the formation of character might be ascertained) that we could know so accurately the circumstances of any given case as to be able positively to predict the character that would be produced in that case. But we must remember that a degree of knowledge far short of the power of actual prediction is often of much practical value. There may be great power of influencing phenomena, with a very imperfect knowledge of the causes by which they are in any given instance determined. It is enough that we know that certain means have a *tendency* to produce a given effect, and that others have a tendency to frustrate it. When the circumstances of an individual or of a nation are in any considerable degree under our control, we may, by our knowledge of tendencies, be enabled to shape those circumstances in a manner much more favorable to the ends we desire, than the shape which they would of themselves assume. This is the limit of our power; but within this limit the power is a most important one.

This science of Ethology may be called the Exact Science of Human Nature; for its truths are not, like the empirical laws which depend on them, approximate generalizations, but real laws. It is, however (as in all cases of complex phenomena), necessary to the exactness of the propositions, that they should be hypothetical only, and affirm tendencies, not facts. They must not assert that something will always, or certainly, happen; but only that such and such will be the effect of a given cause, so far as it operates uncounteracted. It is a scientific proposition, that bodily strength tends to make men courageous; not that it always makes them so: that an interest on one side of a question tends to bias the judgment; not that it invariably does so: that experience tends to give wisdom; not that such is always its effect. These propositions, being assertive only of tendencies, are not the less universally true because the tendencies may be frustrated.

§ 5. While, on the one hand, Psychology is altogether, or principally, a science of observation and experiment, Ethology, as I have conceived it, is, as I have already remarked, altogether deductive. The one ascertains the simple laws of Mind in general, the other traces their operation in complex combinations of circumstances. Ethology stands to Psychology in a relation very similar to that in which the various branches of natural philosophy stand to mechanics. The principles of Ethology are properly the middle principles, the *axiomata media* (as Bacon would have said) of the science of mind: as distinguished, on the one hand, from the empirical laws resulting from simple observation, and, on the other, from the highest generalizations.

And this seems a suitable place for a logical remark, which, though of general application, is of peculiar importance in reference to the present subject. Bacon has judiciously observed that the *axiomata media* of every science principally constitute its value. The lowest generalizations, until explained by and resolved into the middle principles of which they are the consequences, have only the imperfect accuracy of empirical laws; while the most general laws are *too* general, and include too few circumstances, to give sufficient indication of what happens in individual cases, where the circumstances are almost always immensely numerous. In the importance, therefore, which Bacon assigns, in every science, to the middle principles, it is impossible not to agree with him. But I conceive him to have been radically wrong in his doctrine respecting the mode in which these *axiomata media* should be arrived at; though there is no one proposition laid down in his works for which he has been more extravagantly eulogized. He enunciates as a universal rule that induction should proceed from the lowest to the middle principles, and from those to the highest, never reversing that order, and, consequently, leaving no room for the discovery of new principles by way of deduction at all. It is not to be conceived that a man of his sagacity could have fallen into this mistake if there had existed in his time, among the sciences which treat of successive phenomena, one single instance of a deductive science, such as mechanics, astronomy, optics, acoustics, etc., now are. In those sciences it is evident that the higher and

middle principles are by no means derived from the lowest, but the reverse. In some of them the very highest generalizations were those earliest ascertained with any scientific exactness; as, for example (in mechanics), the laws of motion. Those general laws had not, indeed, at first the acknowledged universality which they acquired after having been successfully employed to explain many classes of phenomena to which they were not originally seen to be applicable; as when the laws of motion were employed, in conjunction with other laws, to explain deductively the celestial phenomena. Still, the fact remains, that the propositions which were afterward recognized as the most general truths of the science were, of all its accurate generalizations, those earliest arrived at. Bacon's greatest merit can not therefore consist, as we are so often told that it did, in exploding the vicious method pursued by the ancients of flying to the highest generalizations first, and deducing the middle principles from them; since this is neither a vicious nor an exploded, but the universally accredited method of modern science, and that to which it owes its greatest triumphs. The error of ancient speculation did not consist in making the largest generalizations first, but in making them without the aid or warrant of rigorous inductive methods, and applying them deductively without the needful use of that important part of the Deductive Method termed Verification.

The order in which truths of the various degrees of generality should be ascertained can not, I apprehend, be prescribed by any unbending rule. I know of no maxim which can be laid down on the subject, but to obtain those first in respect to which the conditions of a real induction can be first and most completely realized. Now, wherever our means of investigation can reach causes, without stopping at the empirical laws of the effects, the simplest cases, being those in which fewest causes are simultaneously concerned, will be most amenable to the inductive process; and these are the cases which elicit laws of the greatest comprehensiveness. In every science, therefore, which has reached the stage at which it becomes a science of causes, it will be usual as well as desirable first to obtain the highest generalizations, and then deduce the more special ones from them. Nor can I discover any foundation for the Baconian maxim, so much extolled by subsequent writers, except this: That before we attempt to explain deductively from more general laws any new class of phenomena, it is desirable to have gone as far as is practicable in ascertaining the empirical laws of those phenomena; so as to compare the results of deduction, not with one individual instance after another, but with general propositions expressive of the points of agreement which have been found among many instances. For if Newton had been obliged to verify the theory of gravitation, not by deducing from it Kepler's laws, but by deducing all the observed planetary positions which had served Kepler to establish those laws, the Newtonian theory would probably never have emerged from the state of an hypothesis.(273)

The applicability of these remarks to the special case under consideration can not admit of question. The science of the formation of character is a science of causes. The subject is one to which those among the canons of induction, by which laws of causation are ascertained, can be rigorously applied. It is, therefore, both natural and advisable to ascertain the simplest, which are necessarily the most general, laws of causation first, and to deduce the middle principles from them. In other words, Ethology, the deductive science, is a system of corollaries from Psychology, the experimental science.

§ 6. Of these, the earlier alone has been, as yet, really conceived or studied as a science; the other, Ethology, is still to be created. But its creation has at length become practicable. The empirical laws, destined to verify its deductions, have been formed in abundance by every successive age of humanity; and the premises for the deductions are now sufficiently complete. Excepting the degree of uncertainty which still exists as to the extent of the natural differences of individual minds, and the physical circumstances on which these may be dependent (considerations which are of secondary importance when we are considering mankind in the average, or *en masse*), I believe most competent judges will agree that the general laws of the different constituent elements of human nature are even now sufficiently understood to render it possible for a competent thinker to deduce from those laws, with a considerable approach to certainty, the particular type of character which would be formed in mankind generally by any assumed set of circumstances. A science of Ethology, founded on the laws of Psychology, is therefore possible; though little has yet been done, and that little not at all systematically, toward forming it. The progress of this important but most imperfect science will depend on a double process: first, that of deducing theoretically the ethological consequences of

particular circumstances of position, and comparing them with the recognized results of common experience; and, secondly, the reverse operation; increased study of the various types of human nature that are to be found in the world; conducted by persons not only capable of analyzing and recording the circumstances in which these types severally prevail, but also sufficiently acquainted with psychological laws to be able to explain and account for the characteristics of the type, by the peculiarities of the circumstances: the residuum alone, when there proves to be any, being set down to the account of congenital predispositions.

For the experimental or *a posteriori* part of this process, the materials are continually accumulating by the observation of mankind. So far as thought is concerned, the great problem of Ethology is to deduce the requisite middle principles from the general laws of Psychology. The subject to be studied is, the origin and sources of all those qualities in human beings which are interesting to us, either as facts to be produced, to be avoided, or merely to be understood; and the object is, to determine, from the general laws of mind, combined with the general position of our species in the universe, what actual or possible combinations of circumstances are capable of promoting or of preventing the production of those qualities. A science which possesses middle principles of this kind, arranged in the order, not of causes, but of the effects which it is desirable to produce or to prevent, is duly prepared to be the foundation of the corresponding Art. And when Ethology shall be thus prepared, practical education will be the mere transformation of those principles into a parallel system of precepts, and the adaptation of these to the sum total of the individual circumstances which exist in each particular case.

It is hardly necessary again to repeat that, as in every other deductive science, verification *a posteriori* must proceed *pari passu* with deduction *a priori*. The inference given by theory as to the type of character which would be formed by any given circumstances must be tested by specific experience of those circumstances whenever obtainable; and the conclusions of the science as a whole must undergo a perpetual verification and correction from the general remarks afforded by common experience respecting human nature in our own age, and by history respecting times gone by. The conclusions of theory can not be trusted, unless confirmed by observation; nor those of observation, unless they can be affiliated to theory, by deducing them from the laws of human nature, and from a close analysis of the circumstances of the particular situation. It is the accordance of these two kinds of evidence separately taken--the consilience of *a priori* reasoning and specific experience--which forms the only sufficient ground for the principles of any science so "immersed in matter," dealing with such complex and concrete phenomena, as Ethology.