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INQUIRIES

CONCERNING THE

INTELLECTUAL POWERS

AND THE

INVESTIGATION OF TRUTH.

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AND THE

INVESTIGATION OF TRUTH.

BY

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SEVENTH EDITION.

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PREFACE

TO THE

FOURTH EDITION.

In presenting to the public a Fourth Edition of this volume, at so short a period from its first publication, the Author feels himself called upon again to express, in the strongest terms, his sense of the manner in which it has been received, and of the notice which has been bestowed upon it by those whose approbation he highly values. A prejudice appears to have long existed against metaphysical inquiries, from an impression that they relate only to scholastic sophistries, incapable of being applied to any useful purpose, and leading to no results which are entitled to the character of truth. The object of the Author has been to avoid all such unprofitable speculations, and to restrict his investigations by those boundaries

within which the science can be shown to rest upon authentic facts, and to yield conclusions of the utmost practical importance. If he has thus succeeded in giving to the science of mind some degree of popular interest, the intention is accomplished which he had in view, when he ventured on a course of inquiry, which has been enriched by the talents, and adorned by the eloquence, of some of the most eminent individuals that have devoted themselves to any department of human knowledge.

PREFACE

TO THE

FIFTH EDITION.

THE Fifth Edition, though published in a small and portable form, is enlarged by some new facts and observations, which, it is hoped, will add to the interest of the volume. These relate chiefly to the subjects of delirium, memory, dreaming, somnambulism, insanity, idiocy, and spectral illusions.

EDINBURGH, *April* 1835.

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INTRODUCTION.

THE study of the phenomena of mind presents a subject of intense interest, not to the moral philosopher only, but to every one who has in view the cultivation of his own mental powers, or the proper application of them to the investigation of truth in any department of knowledge. During the prevalence of that system which has been called the Metaphysics of the Schools, this important inquiry was obscured by speculations of the most frivolous nature. It is in modern times only that it has assumed a real value and a practical importance, under the researches of those eminent men, who have cultivated the philosophy of mind on the principles which are acted upon in physical science, namely, a careful observation of facts, and conclusions drawn from these by the most cautious induction. The chief hinderance to the cultivation of the science, on these principles, arises from the difficulty of procuring the facts. For the only field, in which the mental philosopher can pursue his

researches with perfect confidence, is his own mind. In his observations on the minds of other men, he is obliged to judge of the internal operations by external phenomena; and in this manner a degree of uncertainty attends his investigations, which does not occur in physical science. From this source, also, has probably arisen much of that difference of opinion which we meet with in regard to the mental powers: For, each inquirer having drawn his observations chiefly from one mind, namely, his own, it was scarcely to be expected that there should not be some diversity, or that facts derived in this manner should possess the character of being universal.

The means by which this difficulty can be removed must consist in an extensive collection of facts, illustrating the phenomena of mind in various individuals, and under a variety of circumstances; and there are several points of view in which the subject is peculiarly adapted to the medical observer. Mental manifestations are greatly modified by the condition of those bodily organs by which the mind holds intercourse with external things, especially the brain. It becomes therefore a matter of the greatest interest, to ascertain the manner in which the manifestations of mind are affected by diseases of these organs, as well as to observe their condition in that remarkable class of affections, commonly called diseases of the mind. Besides, in the affections which are referable to both these classes, we often meet with manifestations of the

most interesting kind, and such as are calculated to illustrate, in a very striking manner, important points in the philosophy of the mental powers. It is thus in the power of the observing physician to contribute valuable facts to the science of mind ; and it is almost unnecessary to add, that the study may be turned to purposes of immediate importance to his own inquiries. He does not need to be reminded, how much the mind acts upon the body,—that mental emotions often prove sources of disease, or causes by which his remedies are modified or counteracted,—and that, on the other hand, a remedy may often be introduced by the mind, capable of composing tumults of the corporeal functions, which cannot be tranquillized by physical aid.

From the deep interest which the philosophy of mind thus presents to the medical inquirer, I have been induced to attempt a slight outline of this extensive subject. In doing so, I do not profess to offer any thing new or original. My object is to present to the younger part of the profession some leading facts, which may serve to direct their farther inquiries on a subject of great and general interest.

This slight outline of the functions of mind will be followed by an attempt to trace the rules, which ought to guide us in applying these powers to the investigation of truth, in any department of knowledge. The practical application of the subject will lead to a general view of the laws or principles of philosophical

inquiry and inductive science, and will then be directed in a more particular manner to the purposes of medical investigation. This is attempted in the hope that the principles which it is meant to convey, may be of use in giving precision to medical investigations, by illustrating those rules of sound induction, which are acted upon in other departments of science.

PRELIMINARY OBSERVATIONS

ON THE

GENERAL NATURE AND OBJECTS OF SCIENCE.

By the will of the Almighty Creator, all things in nature have been placed in certain relations to each other, which are fixed and uniform. In other words, they have been endowed with capacities of acting, and capabilities of being acted upon, according to certain uniform laws; so that their actions take place in the same manner in every instance in which the same bodies are brought together under similar circumstances. We have a conviction, which appears to be original and instinctive, of the general uniformity of these relations; and in this consists our confidence in the regularity of all the operations of nature. But the powers or principles on which the relations depend are entirely hidden from us in our present state of being. The province of human knowledge is merely to observe the facts, and to trace what their relations or sequences are. This is to be accomplished only by

a careful and extensive observation of the facts as they pass before us, and by carefully distinguishing their true or uniform relations, from connexions which are only incidental and temporary.

In our first observation of any particular series of facts or events, we find a certain number of them placed together in a state of contiguity or apparent connexion. But we are not entitled from this to assume the connexion to be any thing more than incidental juxta-position. When, in the farther progress of observation, we find the same events occurring a certain number of times, in the same relations or sequences to each other, we suspect that their connexion is not merely that of incidental contiguity. We begin to believe that there exists among them such a relation as leads us, when we meet with some of these events, to expect that certain others are to follow. Hence is excited our idea of power in reference to these events, or of the relation of cause and effect. This relation, however, according to the utmost extent of our knowledge of it in any individual instance, is founded entirely upon the fact of certain events uniformly following one another. But, when we have found, by sufficient observation, the particular events which do thus follow one another, we conclude that there is a connexion, whatever may be the nature of it, in consequence of which the sequence which we have observed will continue to recur in the same fixed and uniform manner. In other

words, we conclude with confidence, that, when we observe the first of two such events, the second will follow; and that, when we observe the second, the first has preceded it. The first we call cause, the second effect. Thus our general confidence in the uniformity of the true relations or sequences of events is an original or instinctive principle, and not the result of experience; but it is by experience that we ascertain what the individual sequences are which observe this uniformity; or, in other words, learn to distinguish connexions which consist of incidental contiguity, from those which constitute true and uniform relations.

The natural tendency of the mind appears indeed to be, to infer causation from every succession of phenomena, and to expect uniformity in every sequence. It is from experience we learn, that this impression is not to be relied on in regard to individual sequences, but requires to be corrected by observation. The result of our farther experience then is, to ascertain what those sequences are which are uniform, and which, consequently, we may consider as connected in the manner of causation. We are thus first taught by experience the caution which is necessary in considering events as connected in the manner of cause and effect; and learn not to assume this relation, till, by farther experience, we have ascertained that the sequence is uniform. This caution, however, has no reference to our instinctive

impression of causation, or our absolute conviction that every event must have an adequate cause; it only relates to our fixing the arrangement of individual antecedents, or, in other words, to our determining what individual events we are warranted in considering as the true antecedents, or causes of certain other events. This, accordingly, can in many cases be accomplished only by long and extensive observation; while, in others, a single instance may be sufficient to produce an absolute conviction of what is the true antecedent. A child, who has been only once burnt, may dread the fire as certainly as if the accident had happened a hundred times; and there are many other instances in which the conviction may be produced in the same rapid manner. The natural tendency of the mind, in fact, is not only to infer the connexion, but in many cases to carry it farther than the truth. If, for instance, we suppose a man, who, for the first time in his life, has seen gunpowder explode upon a match being applied to it,—he would probably have an immediate conviction that a similar explosion would take place again in similar circumstances. But he would perhaps go farther than this: he would probably expect a similar explosion when he applied a match to other black powders, with the nature of which he was unacquainted, such as powdered charcoal. It is by experience that this erroneous expectation would be corrected, and that he would learn the precise in-

stances in which the particular result takes place. But it is also by experience or observation that he learns the former, though the conviction was produced more immediately; for there is nothing in the characters of gunpowder and charcoal from which any man could pronounce, by reasoning *a priori*, that the one would explode with violence when a match was applied to it, and the other remain entirely unchanged.

Thus, our general impression of causation is not the result of experience, but an original and intuitive principle of belief; that is, our absolute conviction, that every event must have an adequate cause. This is, in fact, that great and fundamental truth, by which, from the properties of a known effect, we infer the powers and qualities of an unknown cause. It is in this manner, for example, that from the works of nature we infer the existence and attributes of the Almighty Creator. But, in judging of the connexion between any two individual events in that order of things which he has established, our idea of causation is derived from experience alone. For, in regard to any two such events, our idea of causation or of power amounts to nothing more than our knowledge of the fact, that the one is invariably the antecedent of the other. Of the mysterious agency on which the connexion depends, we know nothing, and never can know any thing in our present state of being. We know that the application of a match

always sets fire to gunpowder, and we say, that it has the *power* of doing so, or that it is the *cause* of the explosion; but we have not the least conception why the application of fire produces combustion in an inflammable substance;—these expressions, therefore, amount to nothing more than a statement of the fact, that the result is universal.

When we speak, therefore, of physical causes, in regard to any of the phenomena of nature, we mean nothing more than the fact of a certain uniform connexion which has been observed between events. Of efficient causes, or the manner in which the result takes place, we know nothing. In this sense, indeed, we may be said not to know the cause of any thing, even of events which at first sight appear the most simple and obvious. Thus, the communication of motion from one body to another by impulse appears a very simple phenomenon,—but how little idea have we of the cause of it. We say the bodies touch each other, and so the motion is communicated. But, in the first place, we cannot say why a body in motion, coming in contact with one at rest, should put the latter in motion; and farther, we know that they do not come in contact. We may consider it, indeed, as ascertained, that there is no such thing as the actual contact of bodies under these circumstances; and, therefore, the fact which appears so simple comes to be as unaccountable as any phenomenon in nature. What, again, appears more intelligible than an un-

supported body falling to the ground. Yet, what is more inexplicable, than that one mass of matter should thus act upon another, at any distance, and even though a vacuum be interposed between them. The same observation will be seen to apply to all the facts which are most familiar to us. Why, for example, one medicine acts upon the stomach, another on the bowels, a third on the kidneys, a fourth on the skin, we have not the smallest conception; we know only the uniformity of the facts.

It is of importance to keep in mind the distinction now referred to between physical and efficient causes, as the former only are the proper objects of philosophical inquiry. The term final cause, again, has been applied to a subject entirely different; namely, to the appearances of unity of design in the phenomena of nature, and the manner in which means are adapted to particular ends. The subject is one of great and extensive importance, but it appears desirable that the name were altered, though it is sanctioned by high authority; for, when viewed in connexion with the sense in which the word cause is employed in modern science, it expresses a meaning remarkably different. The investigation to which it refers is also of a distinct nature, though one of the highest interest. It leads us chiefly to the inductions of natural religion respecting a great and intelligent first cause; but it may also be directed to the discovery of truth in regard to the phenomena of nature.

One of the most remarkable examples of this last application of it is to be found in the manner in which Harvey was led to the discovery of the circulation of the blood, by observing the valves in the veins, and contemplating the uses to which that peculiar structure might be adapted.

The object of all *science* is to ascertain these established relations of things, or the tendency of certain events to be uniformly followed by certain other events; in other words, the aptitude of certain bodies to produce, or to be followed by, certain changes in other bodies in particular circumstances. The object of *art* is to avail ourselves of the knowledge thus acquired, by bringing bodies into such circumstances as are calculated to lead to those actions upon each other of which we have ascertained them to be capable. Art, therefore, or the production of certain results by the action of bodies upon each other, must be founded upon science, or a knowledge of their fixed and uniform relations and tendencies. This principle applies to all sciences, and to the arts or practical rules which are founded upon them; and the various sciences differ only in the particular substances or events which are their more immediate objects.

In the physical sciences, we investigate the relations of material substances, and their actions upon each other, either of a mechanical or chemical nature. On the relations thus ascertained are founded the mechanical and chemical arts, in which we produce certain

results, by bringing bodies into such circumstances as are calculated to give rise to their peculiar actions. But mental phenomena have also their relations, which are likewise fixed and uniform; though it may be more difficult to ascertain the truth in regard to them, than in the relations of material things.

The relations or sequences of mental phenomena are to be considered in two points of view, namely, relations to each other, and relations to external things. In regard to both, it seems necessary to divide the phenomena themselves into three classes.

1. Simple intellect, or those powers by which we perceive, remember, and combine facts or events, and compare them with each other; such as perception, memory, imagination, and judgment.

2. Passive emotions, or those by which the mind is affected by certain pleasurable or painful feelings, which are, or may be, confined entirely to the individual who is the subject of them.

3. Active emotions, or those which tend directly to influence the conduct of men, either as moral and responsible beings, or as members of society.

In all these classes, mental phenomena have certain relations to each other and to external things, the investigation of which is the object of particular branches of science; and these lead to certain arts or practical rules which are founded upon them.

Intellectual science investigates the laws and relations of the processes of simple intellect, as percep-

tion, memory, imagination and judgment; and the proper cultivation and regulation of these is the object of the practical art of intellectual education.

The passive emotions may be influenced or excited in two ways;—namely,—through our relations to other sentient and intelligent beings,—and by material or inanimate things. To the former head are referable many of the tenderest and most interesting feelings of our nature, as love, hope, joy and sorrow. To the latter belong those emotions which come under the subject of taste, or the tendencies of certain combinations of material things to excite emotions of a pleasurable or painful kind,—as our impressions of the sublime, the beautiful, the terrible, or the ludicrous. The practical rules or processes, connected with the science of the passive emotions, arrange themselves into two classes, corresponding to the two divisions now mentioned. To the former belong the regulation of the emotions, and all those rules of conduct not exactly referable to the higher subject of morals which bear an extensive influence on the ties of friendship, and the relations of social and domestic intercourse. To the latter belong chiefly those processes which come under the head of the fine arts;—namely, the arts of the painter,—the sculptor,—the architect,—the musician; perhaps we may add, the poet and the dramatist.

The active emotions, or those which influence human conduct, are referable to two classes; name-

ly, those which affect men individually as moral and responsible agents,—and those which affect them as united in large bodies constituting civil society. The cultivation of the emotions of the former class, and the investigation of the motives and principles by which they are influenced, belong to the high subjects of morals and religion. The investigation and control of emotions of the latter class come under the science of politics; and the practical art, founded upon it, relates to those measures by which the statesman attempts to control and regulate the conduct of masses of mankind united as members of a great civil community.

In medical science, the objects of our researches are chiefly the relations between external things and the living powers of animal bodies,—and the relations of these powers to each other;—more particularly in regard to the tendencies of external things to produce certain changes upon living bodies, either as causes of disease or as remedies. The practical art founded upon this science leads to the consideration of the means by which we may avail ourselves of this knowledge, by producing, in the one case, actions upon the body which we wish to produce, and in the other, by counteracting or avoiding actions which we wish to prevent.

In all these sciences, and the practical arts which are founded upon them, the general principles are the same; namely, a careful observation of the na-

tural and uniform relations or tendencies of bodies towards each other; and a bringing of those tendencies into operation for the production of certain results. All art, therefore, must be founded upon science, or a correct knowledge of these relations; and all science must consist of such a careful observation of facts in regard to the relations, as shall enable us confidently to pronounce upon those which are fixed and uniform. He who follows certain arts or practical rules, without a knowledge of the science on which they are founded, is the mere artisan or the empiric; he cannot advance beyond the precise rules which are given him, or provide for new occurrences and unforeseen difficulties. In regard to science, again, when the relations are assumed hastily, or without a sufficiently extensive observation of facts, the process constitutes false science, or false induction; and, when practical rules are founded upon such conclusions, they lead to error and disappointment in the result which is expected.

The views which have now been referred to lead us to principles, by which the sciences are distinguished into those which are certain, and those which are, in a greater or less degree, uncertain. The certainty of a science depends upon the facility and correctness with which we ascertain the true relations of things, or trace effects to their true causes, and causes to their true effects,—and calculate upon the

actions which arise out of these relations taking place with perfect uniformity. This certainty we easily attain in the purely physical sciences, or those in which we have to deal only with inanimate matter. For, in our investigation of the relations of material bodies, whether mechanical or chemical, we contrive experiments, in which, by placing the bodies in a variety of circumstances towards each other, and excluding all extraneous influence, we come to determine their tendencies with perfect certainty. Having done so, we rely with confidence on these tendencies continuing to be uniform; and should we, in any instance, be disappointed of the result which we wish to produce, we are able, at once, to detect the nature of some incidental cause by which the result has been prevented, and to obviate the effect of its interference. The consequence of this accurate knowledge of their relations is, that we acquire a power over material things; but this power is entirely limited to a certain control and direction of their natural relations; and we cannot change these relations in the smallest particular. Our power is of course also limited to those objects which are within the reach of our immediate influence; but, with respect to those which are beyond this influence, as the heavenly bodies, the result of our knowledge appears in a manner not less striking, in the minute accuracy with which we are enabled to foretell their movements, even at very distant periods. I need

only mention the correctness with which the astronomer calculates eclipses, and the appearance of comets.

With these characters of certainty in the purely physical sciences, two sources of uncertainty are contrasted in those branches of science in which we have to deal with mental operations, or with the powers of living bodies. The first of these depends upon the circumstance, that, in investigating the relations and tendencies in these cases, we are generally obliged to trust to observation alone, as the phenomena happen to be presented to us, and cannot confirm or correct these observations by direct experiment. And as the visible connexions, in which the phenomena occur to us, are often very different from their true relations, it is in many cases extremely difficult to ascertain the true relations; that is, to refer effects to their true causes, and to trace causes to their true effects. Hence just conclusions are arrived at slowly, and after a long course of occasional observations; and we may be obliged to go on for a long time without acquiring any conclusions which we feel to be worthy of confidence. In these sciences, therefore, there is great temptation to grasp at premature inductions; and when such have been brought forward with confidence, there is often difficulty in exposing their fallacy; for in such a case it may happen, that as long a course of observation is required for exposing the false conclusion, as for

ascertaining the true. In physical science, on the other hand, a single experiment may often overturn the most plausible hypothesis, or may establish one which was proposed in conjecture.

The second source of uncertainty in this class of sciences consists in the fact, that, even after we have ascertained the true relations of things, we may be disappointed of the results which we wish to produce, when we bring their tendencies into operation. This arises from the interposition of other causes, by which the true tendencies are modified or counteracted, and the operation of which we are not able either to calculate upon or to control. The new causes, which operate in this manner, are chiefly certain powers in living animal bodies, and the wills, feelings, and propensities of masses of human beings, which we have not the means of reducing to any fixed or uniform laws. As examples of the uncertain sciences, therefore, we may mention medicine and political economy; and their uncertainty is referable to the same sources, namely, the difficulty of ascertaining the true relations of things, or of tracing effects to their true causes, and causes to their true effects;—and the intervention of new causes which elude our observation, while they interfere with the natural tendencies of things, and defeat our attempts to produce certain results by bringing these into action. The scientific physician well knows the difficulty of ascertaining the true relations of those things which are

the proper objects of his attention, and the uncertainty which attends all his efforts to produce particular results. A person, for example, affected with a disease, recovers under the use of a particular remedy. A second is affected with the same disease, and uses this remedy without any benefit; while a third recovers under a very different remedy, or without any treatment at all. And, even in those cases in which he has distinctly ascertained true relations, new causes intervene and disappoint his endeavours to produce results by means of these relations. He knows, for example, a disease which would certainly be relieved by the full operation of diuretics;—and he knows various substances which have unquestionably diuretic virtues. But in a particular instance, he may fail entirely in relieving the disease by the most assiduous use of these remedies;—for their real and true tendencies are interrupted by certain other causes in the constitution itself, which entirely elude his observation, and are in no degree under his control.

It is unnecessary to point out the similarity of these facts to the uncertainty experienced by the statesman, in his attempts to influence the interests, the propensities, and the actions of masses of mankind; or to show how often measures, which have been planned with every effort of human wisdom, fail of the results which they were intended to produce, or are followed by consequences remarkably dif-

ferent. Nothing indeed can show in a more striking manner, the uncertainty which attaches to this science, than the different aspects in which the same measure is often viewed by different men distinguished for political wisdom and talent. I abstain from alluding to particular examples, but those accustomed to attend to public affairs will find little difficulty in fixing upon remarkable instances, in which measures have been recommended by wise and able men, as calculated to lead to important benefits; while others of no inferior name for talent and wisdom have, with equal confidence, predicted from them consequences altogether different. Such are the difficulties of tracing effects to their true causes, and causes to their true effects, when we have to deal, not with material substances simply, but with the powers of living bodies, or with the wills, the interests, and propensities of human beings.

One other reflection arises out of the view which has been given of this important subject. The object of all science, whether it refer to matter or to mind, is simply to ascertain facts, and to trace their relations to each other. The powers which regulate these relations are entirely hidden from us in our present imperfect state of being; and by grasping at principles which are beyond our reach, we leave that path of inquiry which alone is adapted to our limited faculties, and involve ourselves in error, per-

plexity, and darkness. It is humbling to the pride of human reason, but is not the less true, that the highest acquirement ever made by the most exalted genius of man has been only to trace a part, and a very small part, of that order which the Deity has established in his works. When we endeavour to pry into the causes of this order, we perceive the operation of powers which lie far beyond the reach of our limited faculties. They who have made the highest advances in true science will be the first to confess how limited these faculties are, and how small a part they can comprehend of the ways of the Almighty Creator. They will be the first to acknowledge, that the highest acquirement of human wisdom is to advance to that line which is its legitimate boundary, and there contemplating the wondrous field which lies beyond it, to bend in humble adoration before a wisdom which it cannot fathom, and a power which it cannot comprehend.

INQUIRIES

CONCERNING THE

INTELLECTUAL POWERS,

&c.

PART I.

OF THE NATURE AND EXTENT OF OUR KNOWLEDGE OF MIND.

The mind is that part of our being which thinks and wills,—remembers and reasons; we know nothing of it except from these functions. By means of the corporeal senses, it holds intercourse with the things of the external world, and receives impressions from them. But of this connexion also we know nothing but the facts; when we attempt to speculate upon its nature and cause, we wander at once from the path of philosophical inquiry, into conjectures which are as far beyond the proper sphere as they are beyond the reach of the human faculties. The object of true science on such a subject, therefore, is simply to investigate the facts, or the relations of phenomena, respecting the operations of mind

itself, and the intercourse which it carries on with the things of the external world.

This important rule in the philosophy of mind has been fully recognised in very modern times only, so that the science, as a faithful interpretation of nature, may be considered as of recent origin. Before the period now referred to, the investigation was encumbered by the most fruitless speculations respecting the essence of mind, and other discussions which led to no discovery of truth. It was contended, for example, that the mind cannot act where it is not present, and that consequently it cannot be said to perceive external objects themselves, but only their images, forms, or sensible species, which were said to be conveyed through the senses, and represented to the mind in the same manner in which images are formed in a camera obscura. By the internal functions of mind, these sensible species were then supposed to be refined into phantasms, the objects of memory and imagination; and these, after undergoing a farther process, became intelligible species, the objects of pure intellect. By a very natural application of this doctrine, it was maintained by Bishop Berkeley and the philosophers of his school, that, as the mind can perceive nothing but its own impressions or images, we can derive no evidence from our senses of the existence of the external world; and Mr. Hume carried the argument a little farther, by maintaining that we have as little proof of the ex-

istence of mind, and that nothing exists in the universe except impressions and ideas. Of another sect of philosophers who arose out of the same system, each individual professed to believe his own existence, but would not admit the existence of any other being; hence they received the appropriate name of Egoists.

The various eminent individuals by whom the fallacy of these speculations was exposed, combated them upon the principle that this doctrine of ideas is entirely a fiction of philosophers; and that a confidence in the information conveyed to us by our senses, must be considered as a first truth, or a fundamental law of our nature, susceptible of no explanation, and admitting of no other evidence than that which is derived from the universal conviction of mankind. Nor does it, to common minds, appear a slight indication of the validity of this mode of reasoning, that the philosophers who supported that theory do not appear to have acted upon their own system, but in every thing which concerned their personal accommodation or personal safety, showed the same confidence in the evidence of their senses, as other men.

The deductions made from the ideal theory by Berkeley and Hume seem to have been applications of it which its former advocates had not contemplated. But it is a singular fact, as stated by Dr. Reid, that nearly all philosophers, from Plato

to Mr. Hume, agreed in maintaining, that the mind does not perceive external things themselves, but only their ideas, images, or species. This doctrine was founded upon the maxim, that mind cannot act where it is not present; and we find one writer only, who, admitting the maxim, called in question the application of it, so far as to maintain, that the mind, in perceiving external things, leaves the body, and comes into contact with the objects of its perception.

Such speculations ought to be entirely banished from the science of mind, as not only useless and unprofitable, but as referring to things entirely beyond the reach of the human faculties, and therefore contrary to the first principles of philosophical investigation. To the same class we are to refer all speculations in regard to the essence of mind, the manner in which thought is produced, and the means by which the intercourse is carried on between the mind and external objects. These remarkable functions were at one time explained by an imaginary essence called the animal spirits, which were supposed to be in constant motion, performing the office of messengers between the brain and the organs of sense. By another class of philosophers, of no very ancient date, thinking was ascribed to vibrations in the particles of the brain. The communication of perceptions from the senses to the mind has been accounted for, in the same manner, by the motions of the nervous fluid,

by vibrations of the nerves, or by a subtle essence resembling electricity or galvanism. The mind, again, has been compared to a camera obscura,—to a mirror, and to a storehouse. In opposition, however, to all such hypotheses, which are equally incapable either of proof or of refutation, our duty is to keep steadily in view, that the objects of true science are facts alone, and the relations of these facts to each other. The mind can be compared to nothing in nature; it has been endowed by its Creator with a power of perceiving external things; but the manner in which it does so is entirely beyond our comprehension. All attempts, therefore, to explain or illustrate its operations by a reference to any thing else, can be considered only as vain and futile. They are endeavours to establish a resemblance where there is not the vestige of an analogy; and consequently they can lead to no useful result. It is only by a rigid adherence to the opposite course of investigation, that we can expect to make any progress in true knowledge, or to impart to our inquiries in any department of science the characters either of truth or utility.

The ideal theory, with all the doctrines founded upon it, may now be considered as gone by. But certain speculations are still occasionally brought out by writers of a particular order, which are referable to the same class; namely, hypotheses which are to be treated not merely as unsound, but as being, by

their very nature, directly opposed to the first principles of philosophical inquiry. Among these, the most prominent is the doctrine of materialism, of which it may be advisable to take a slight view in the commencement of this essay. On the principles which have been referred to, the following considerations may be submitted as bearing upon this subject.

The term Matter is a name which we apply to a certain combination of properties, or to certain substances which are solid, extended, and divisible, and which are known to us only by these properties. The term Mind, in the same manner, is a name which we apply to a certain combination of functions, or to a certain power which we feel within, which thinks and wills and reasons, and is known to us only by these functions. The former we know only by our senses, the latter only by our consciousness. In regard to their essence or occult qualities, we know quite as little about matter as we do about mind; and in as far as our utmost conception of them extends, we have no ground for believing that they have any thing in common. The true object of philosophy is simply to investigate the facts in regard to both; and materialism is not to be viewed only as unsound reasoning, but as a logical absurdity, and a total misconception of the first principles of philosophical inquiry. Does the materialist tell us that the principle which thinks is material, or the

result of organization, we have only to ask him what light he expects to throw upon the subject by such an assertion. For the principle which thinks is known to us only by thinking; and the substances which are solid and extended are known to us only by their solidity and extension. When we say of the former that it is immaterial, we simply express the fact that it is known to us by properties altogether distinct from the properties to which we have given the name of matter, and, as far as we know, has nothing in common with them. Beyond these properties, we know as little about matter as we do about mind; so that materialism is scarcely less extravagant than would be the attempt to explain any phenomenon, by referring it to some other altogether distinct and dissimilar; to say, for example, that colour is a modification of sound, or gravity a species of fermentation. The assertion, indeed, would be fully as plausible, and calculated to throw as much light upon the subject, were a person anxious to explain the nature of matter, to tell us that it is the result of a particular manifestation of mind. Something analogous to this, in fact, seems to be the foundation of the theory of Boscovich, who conceives all bodies to consist of unextended atoms or mathematical points endowed with a certain power of repulsion, and consequently makes the essence of matter to consist merely in the property of resistance. We have, in truth, the same kind of evidence for the

existence of mind, that we have for the existence of matter, namely, from its properties; and of the two, the former appears to be the least liable to deception. "Of all the truths we know," says Mr. Stewart, "the existence of mind is the most certain. Even the system of Berkeley concerning the non-existence of matter is far more conceivable than that nothing but matter exists in the universe." "Men," says Baxter, "were formerly credulous and easy, perhaps; now they are affectedly nice, with the air of more philosophy and knowledge; but our moderns forget that he, who believes that dead matter can produce the effects of life and reason, is a hundred times more credulous than the most thorough-paced believer that ever existed."

A similar mode of reasoning may be applied to the modification of materialism more prevalent in modern times, by which mind is considered as a result of organization, or, in other words, a function of the brain; and upon which has been founded the conclusion, that like our bodily senses it will cease to be, when the bodily frame is dissolved. The brain, it is true, is the centre of that influence on which depend sensation and motion. There is a remarkable connexion between this organ and the manifestations of mind; and by various diseases of the brain these manifestations are often modified, impaired, or suspended. We shall afterwards see that these results are very far from being uniform; but, even if

they were uniform, the facts would warrant no such conclusion respecting the nature of mind; for they accord equally with the supposition that the brain is the organ of communication between the mind and the external world. When the materialist advances a single step beyond this, he plunges at once into conclusions which are entirely gratuitous and unwarranted. We rest nothing more upon this argument, than that these conclusions are unwarranted; but we might go farther than this, and contend, that the presumption is clearly on the other side, when we consider the broad and obvious distinction which exists between the peculiar phenomena of mind, and those functions which are exercised through the means of bodily organization. They do not admit of being brought into comparison, and have nothing in common. The most exquisite of our bodily senses are entirely dependent for their exercise upon impressions from external things. We see not without the presence both of light and a body reflecting it; and if we could suppose light to be annihilated, though the eye were to retain its perfect condition, sight would be extinguished. But mind owns no such dependence on external things, except in the origin of its knowledge in regard to them. When this knowledge has once been acquired, it is retained and recalled at pleasure; and mind exercises its various functions without any dependence upon impressions from the external world. That which has long

ceased to exist is still distinctly before it; or is recalled, after having been long forgotten, in a manner even still more wonderful; and scenes, deeds, or beings, which never existed, are called up in long and harmonious succession, invested with all the characters of truth, and all the vividness of present existence. The mind remembers, conceives, combines, and reasons; it loves, and fears, and hopes, in the total absence of any impression from without, that can influence, in the smallest degree, these emotions; and we have the fullest conviction that it would continue to exercise the same functions in undiminished activity, though all material things were at once annihilated.

This argument, indeed, may be considered as only negative, but this is all that the subject admits of. For when we endeavour to speculate directly on the essence of mind, we are immediately lost in perplexity, in consequence of our total ignorance of the subject, and the use of terms borrowed from analogies with material things. Hence the unsatisfactory nature of every physiological or metaphysical argument respecting the essence of mind, arising entirely from the attempt to reason the subject in a manner of which it is not susceptible. It admits not of any ordinary process of logic, for the facts on which it rests are the objects of consciousness only; and the argument must consist in an appeal to the consciousness of every man, that he feels a power within to-

tally distinct from any function of the body. What other conception than this can he form of that power by which he recalls the past, and provides for the future; by which he ranges uncontrolled from world to world, and from system to system; surveys the works of all-creating power, and rises to the contemplation of the eternal cause. To what function of matter shall he liken that principle by which he loves and fears, and joys and sorrows; by which he is elevated with hope, excited by enthusiasm, or sunk in the horrors of despair. These changes also he feels, in many instances, to be equally independent of impressions from without, and of the condition of his bodily frame. In the most peaceful state of every corporeal function, passion, remorse, or anguish, may rage within; and, while the body is racked by the most frightful diseases, the mind may repose in tranquillity and hope. He is taught by physiology, that every part of his body is in a constant state of change, and that, within a certain period, every particle of it is renewed. But, amid these changes, he feels that the being whom he calls himself, remains essentially the same. In particular, his remembrance of the occurrences of his early days, he feels to be totally inconsistent with the idea of an impression made upon a material organ, unless he has recourse to the absurdity of supposing that one series of particles, as they departed, transferred the picture to those which came to occupy their room.

If the being, then, which we call mind or soul, be, to the utmost extent of our knowledge, thus dissimilar to, and distinct from, any thing that we know to be a result of bodily organization, what reason have we to believe that it should be affected by any change in the arrangement of material organs, except in so far as relates to its intercourse with this external world. The effects of that change, which we call the death of an animal body, are nothing more than a change in the arrangement of its constituent elements; for it can be demonstrated, on the strictest principles of chemistry, that not one particle of these elements ceases to exist. We have, in fact, no conception of annihilation; and our whole experience is opposed to the belief that one atom which ever existed has ceased to exist. There is, therefore, as Dr. Brown has well remarked, in the very decay of the body, an analogy which would seem to indicate the continued existence of the thinking principle, since that which we term decay is itself only another name for continued existence. To conceive, then, that any thing mental ceases to exist after death, when we know that every thing corporeal continues to exist, is a gratuitous assumption, contrary to every rule of philosophical inquiry, and in direct opposition, not only to all the facts relating to mind itself, but even to the analogy which is furnished by the dissolution of the bodily frame.

To this mode of reasoning it has been objected,

that it would go to establish an immaterial principle in the lower animals, which in them exhibits many of the phenomena of mind. I have only to answer, —be it so. There are in the lower animals many of the phenomena of mind; and, with regard to these, we also contend, that they are entirely distinct from any thing we know of the properties of matter, —which is all that we mean, or can mean, by being immaterial. There are other principles superadded to material things, of the nature of which we are equally ignorant;—such, for example, as the principle of vegetable life, and that of animal life. To say that these are properties of matter, is merely arguing about a term;—for what we mean by matter, is something which is solid, extended, and divisible. That these properties are, in certain individuals, combined with simple or vegetable life,—in others, with animal life, that is, life and the powers of sensation and motion,—and in others with animal life, and certain of those properties which we call mind, —are all facts equally beyond our comprehension. For any thing we know, they may all be imperishable principles; and for any thing we know, matter itself may be imperishable. The simple truth is, that we know nothing on the subject; and while, on the one hand, we have no title to assume an essence to be mortal, because it possesses only the properties of matter; neither, on the other hand,

have we any right to infer an essence to be immortal, because it possesses properties different from those of matter. We talk, indeed, about matter, and we talk about mind; we speculate concerning materiality and immateriality, until we argue ourselves into a kind of belief, that we really understand something of the subject. The truth is, that we understand nothing. Matter and mind are known to us by certain properties:—these properties are quite distinct from each other; but in regard to both, it is entirely out of the reach of our faculties to advance a single step beyond the facts which are before us. Whether in their substratum or ultimate essence, they are the same, or whether they are different, we know not, and never can know in our present state of being. Let us, then, be satisfied with the facts, when our utmost faculties can carry us no farther; let us cease to push our feeble speculations, when our duty is only to wonder and adore.

These considerations, while they are directly opposed to the crude conclusions of the materialist, also serve to show us how much the subject is removed beyond our limited faculties; and it is not on such speculations, therefore, that we rest the evidence for a future state of being. We know nothing of the nature or the essence of mind; but whatever may be its essence, and whatever may be the nature

and extent of that mysterious connexion which the Deity has established between it and our bodily organization, these points have no reference whatever to the great question of its future existence. The principle seems to have been too much lost sight of in the discussion of this subject, that our speculations respecting the immateriality of the rational human soul have no influence on our belief of its immortality. This momentous truth rests on a species of evidence altogether different, which addresses itself to the moral constitution of man. It is found in those principles of his nature by which he feels upon his spirit the awe of a God, and looks forward to the future with anxiety or with hope ;—by which he knows to distinguish truth from falsehood and evil from good, and has forced upon him the conviction, that he is a moral and responsible being. This is the power of conscience, that monitor within, which raises its voice in the breast of every man, a witness for his Creator. He who resigns himself to its guidance, and he who repels its warnings, are both compelled to acknowledge its power ; and, whether the good man rejoices in the prospect of immortality, or the victim of remorse withers beneath an influence unseen by human eye, and shrinks from the anticipation of a reckoning to come, each has forced upon him a conviction, such as argument never gave, that the being which is essentially himself is distinct from any

function of the body, and will survive in undiminished vigour when the body shall have fallen into decay.

When, indeed, we take into the inquiry the high principles of moral obligation, and the moral government of the Deity, this important truth is entirely independent of all our feeble speculations on the essence of mind. For, though we were to suppose, with the materialist, that the rational soul of man is a mere chemical combination, which, by the dissolution of its elements, is dissipated to the four winds of heaven, where is the improbability, that the power which framed the wondrous compound may collect these elements again, and combine them anew, for the great purposes of his moral administration. In our speculations on such a momentous subject, we are too apt to be influenced by our conceptions of the powers and properties of physical things; but there is a point where this principle must be abandoned, and where the soundest philosophy requires, that we take along with us a full recognisance of the power of God.

There is thus, in the consciousness of every man, a deep impression of continued existence. The casuist may reason against it till he bewilder himself in his own sophistries; but a voice within gives the lie to his vain speculations, and pleads with authority for a life which is to come. The sincere

and humble inquirer cherishes the impression, while he seeks for farther light on a subject so momentous; and he thus receives, with absolute conviction, the truth which beams upon him from the revelation of God,—that the mysterious part of his being, which thinks, and wills, and reasons, shall indeed survive the wreck of its mortal tenement, and is destined for immortality.

PART II.

OF THE ORIGIN OF OUR KNOWLEDGE OF FACTS

RELATIVE BOTH TO

MIND AND MATTER.

Among writers on the science of mind, there was formerly much controversy in regard to the origin of our ideas. Some maintained that they are derived entirely from perception, that is, through the external senses; others considered them as arising partly from perception, and partly from consciousness or reflection; and some added a third class, which they called innate ideas, and which were supposed to exist in the mind itself, independently of, and prior to, the exercise either of perception or reflection. This phraseology had its origin in the ancient theory of ideas, according to which something was supposed to exist, distinct both from the mind and the external object of its perception. This, as we have formerly seen, was what philosophers meant by an idea. It was believed to be the immediate object of the mind's perception, but to be only a kind of image or representative of the object perceived. This hypothesis, which kept its place in the science of mind till a very recent period, is now

generally admitted to have been a fiction of philosophers; and the phraseology respecting ideas is abandoned by the best practical writers; because, though the ancient doctrine be exploded, and the term may be used only in a figurative sense, it still seems to imply something existing in the mind, distinct from the mind itself. The impressions derived from external things are therefore to be considered as the occasions on which the various powers of the mind are brought into action. These powers themselves then become the objects of consciousness or reflection, and, by their farther exercise, we acquire certain notions which arise out of the mental operations. This doctrine gives no encouragement to the scheme of materialism, for it is clear that we cannot remember till we are furnished with some fact to be remembered; but this can never be supposed to affect our belief in the existence of the power of memory, before the fact was so furnished. If we could suppose the case of a man who had lived all his life in the dark, he certainly could not see, but we should not say that the admission of light imparted to him the power of vision; it only furnished the circumstances which gave occasion to the exercise of sight. It has accordingly been shown by Mr. Stewart, that, though we may not be conscious of our mental powers till they are called into action, yet this consciousness may arise from the most simple sensation, such as affords no evidence of the properties, or even of the existence of the material world.

Through the senses, then, we acquire a knowledge of the facts relating to external things. The mental processes, thus brought into action, then become the subjects of consciousness, and we acquire a knowledge of the facts relating to them. By a farther exercise of these powers on various facts referring to both matter and mind, we acquire certain notions arising out of our reflection upon the relations of these facts, such as our notions of time, motion, number, cause and effect, and personal identity; and we acquire farther the impression of certain fundamental laws of belief, which are not referable to any process of reasoning, but are to be considered as a part of our constitution, or a spontaneous and instinctive exercise of reason in every sound mind.

The origin of our knowledge, then, is referable, in a philosophical point of view, to perception and reflection. But in point of fact, the knowledge which is acquired by an individual, through his own perception and reflection, is but a small part of what he possesses; much of the knowledge possessed by every one is acquired through the perceptions of other men. In an essay, therefore, which is intended to be entirely practical, I shall include this last department under the head of testimony. The division of this part of the subject will therefore be,

1. Sensation and Perception.
2. Consciousness and Reflection.
3. Testimony.

SECTION I.

OF SENSATION AND PERCEPTION.

We know nothing of perception except the fact, that certain impressions made upon the organs of sense convey to the mind a knowledge of the properties of external things. Some of the older speculations on this subject have already been referred to. In these the mind was compared to a camera obscura, and the transmission of the forms or images of things to it, from the organs of sense, was explained by the motion of the animal spirits, or the nervous fluid, or by vibrations in the substance of the nerves. All such speculations are now dismissed from the investigation, being considered as attempts to penetrate into mysteries which are beyond the reach of the human faculties, and consequently not the legitimate objects of philosophical inquiry.

Our first knowledge of the existence and properties of the material world is evidently of a complex nature. It seems to arise from the combined action of several senses, conveying to us the general notion of certain essences which are solid and extended, or possessed of those properties which characterize material things. Without this general knowledge previously acquired, our various senses acting indi-

vidually could convey to us no definite notion of the properties of external things. A smell, that is, a mere odour, for example, might be perceived by us, but would convey nothing more than the sensation simply. It could not communicate the impression of this being a property of an external body, until we had previously acquired a knowledge of the existence of that body, and had come, by observation, to associate the sensation with the body from which it proceeds. The same holds true of the other senses; and we are thus led, at the very first step of our inquiry, to a complicated process of mind, without which our mere sensations could convey to us no definite knowledge.

Having thus acquired a knowledge of the existence and general properties of material things, we next derive from our various senses a knowledge of their more minute characters. These are generally divided into primary and secondary. The primary qualities of material things are such as are essential, and must at all times belong to matter; such as solidity and extension. These properties necessarily convey to us a conviction of something existing out of the mind, and distinct from its own sensations. The secondary qualities, again, are colour, temperature, smell, taste, &c. These are not essential properties of matter, but qualities producing sensations in a sentient being; they may or they may not belong to any particular body, or they may be attach-

ed to it at one time and not at another. Hence they convey to us primarily no definite notion in regard to the existence or properties of external things, except, as Mr. Stewart expresses it, "as the unknown cause of a known sensation." One of the quibbles or paradoxes of the scholastic philosophy, was denying the real existence of these secondary qualities of matter. Every one is familiar with the humorous account given in the Guardian, of the attainments of a youth from college, and his display of them when on a visit to Lady Lizard his mother. "When the girls were sorting a set of knots, he would demonstrate to them that all the ribbons were of the same colour, or rather of no colour at all. My Lady Lizard herself, though she was not a little pleased with her son's improvement, was one day almost angry with him; for, having accidentally burnt her fingers, as she was lighting the lamp for her teapot, in the midst of her anguish, Jack laid hold of the opportunity to instruct her, that there is no such thing as heat in the fire." Such speculations, which were at one time common in the schools of philosophy, had their origin entirely in an abuse of terms. The term heat, for example, has two meanings which are quite distinct from each other. It means a sensation produced in a sentient being, and in this sense, it may be said with truth, that there is no heat in the fire; but it means also a quality in material substances capable of producing this sensation,

and it is in this sense that we speak of heat as a property of matter.

The process by which we acquire a knowledge of external things is usually divided into two stages, namely, sensation and perception; the former implying the corporeal, the latter the mental part of it. Others apply the term perception to both; and, according to Dr. Brown, sensation is the simple impression made upon the organs of sense; perception is an association formed between this impression and an external substance which we have ascertained to be concerned in producing it. Our senses, by which this knowledge is acquired, are generally reckoned five,—namely, sight, hearing, taste, smell, and touch. Dr. Brown proposes to add our muscular frame, and apparently with good reason; for there seems ground for believing that it is by resistance to muscular action that we acquire the notion of solidity, and that this could not be acquired by touch alone.

Our first impression of the existence and solidity of material objects, then, seems to be derived from touch combined with muscular resistance; and at the same time we acquire the knowledge of temperature, roughness or smoothness, &c. There has been some difference of opinion in regard to the manner in which we acquire the notion of extension, including figure and magnitude. It is evident that it cannot be acquired by touch alone; but it may be

acquired from touch combined with muscular motion, as when we move the hand over the surface of a body. This, however, includes also the idea of time, —for our notion of the extent of a surface, when the hand moves over it, is very much influenced by the velocity with which the motion is made. Hence time has been supposed by some to be one of our very earliest impressions, and antecedent even to the notion of extension or space. It is probable, however, that the notion of extension may also be acquired in a more simple manner, from the combined operation of touch and vision. If this opinion be correct, it will follow, that our first knowledge of the existence and essential properties of material things is derived from the combined operation of sight, touch, and muscular action.

With regard to all our senses, however, the truth seems to be, that the first notions conveyed by them are of a very limited and imperfect kind; and that our real knowledge is acquired only after considerable observation and experience, in the course of which, the impressions of one sense are corrected and assisted by those of others, and by a process of mind acting upon the whole. The primary objects of vision, for example, seem to be simply light or colour, and expansion. But the judgments which we are in the daily habit of forming upon vision are of a much more extensive kind, embracing also distance, magnitude, and what has been called tangible figure,

such as the figure of a cube or a sphere. This last, it is evident, cannot be considered as a primary object of vision, but as entirely the result of experience derived from the sense of touch; for we never could have formed any conception of the figure of a cube or a sphere by vision alone. Distance and magnitude, also, are evidently not the primary objects of vision; for persons who have been suddenly cured of congenital blindness, by the operation for cataract, have no conception of the distance or magnitude of objects; they perceive only simple expansion of surface with colour. Our judgment of distance and magnitude by vision, therefore, is an acquired habit, founded upon the knowledge which we have received, by other means, of the properties of the objects. Accordingly, it is familiar to every one, that we have no idea of the distance of an object, unless we have some notion of its magnitude; nor, on the other hand, of its magnitude, unless we have some knowledge of its distance. The application of this principle is also familiar in perspective drawing, in which the diminished size of known objects is made to convey the notion of distance. On the same principle, known objects seen through a telescope do not appear to be magnified, but to be brought nearer. In the same manner with regard to sounds; we have no idea of their intensity, unless we have some notion of their distance, and *vice versa*. A given degree of sound, for example, if we believed it to have been produced

in the next room, we might conclude to proceed from the fall of some trifling body; but if we supposed it to be at the distance of several miles, we should immediately conclude that it proceeded from a tremendous explosion.

In regard to certain small distances, however, there is a power of judging by sight alone; and it appears to arise out of the degree of inclination which is given to the axis of vision in directing the two eyes to the object. Thus, in snuffing a candle, or carrying the finger to a small object within arm-length, it will be found that we are very apt to miss it, if we look with one eye only, but can touch it with unerring certainty when both eyes are directed to it. It appears to be on the same principle that we enjoy, in a greater degree, the deception produced by a painting, when we look at it with one eye, especially if we also look through a tube. By the former, we cut off the means of correcting the illusion by the direction of the axis of vision; and by the latter, we remove the influence of all neighbouring objects. It is impossible to determine the precise distance to which we can extend this power of judging of distance by the inclination of the axis of vision, but it does not appear to be great: and in regard to all greater distances the judgment by vision is evidently an acquired habit, arising out of such a mental exercise as has now been referred to.

There are some other circumstances, also the re-

sult of experience, by which we are greatly influenced in all such cases, particularly the degree of illumination of the objects, and the degree of distinctness of their outline and minute parts. Thus, in a picture, distant objects are represented as faintly illuminated, and with indistinctness of outline and minute parts; and *vice versa*. On this principle, objects seen through a fog, or in obscure light, are apt to appear much larger than they really are; because, in the mental process which takes place in regard to them, we first assume them to be distant, from their imperfect outline and faint illumination, and then, judging from this assumed distance, we conclude them to be of great size. On the other hand, objects seen in an unusually clear state of the atmosphere appear nearer than they really are, from the greater distinctness of their outline. In our judgment of distance by sight, we are also greatly influenced by the eye resting on intermediate objects; and hence the difficulty of judging of distances at sea. A striking illustration of the same principle is furnished by Captain Parry, in regard to objects seen across a uniform surface of snow. "We had frequent occasion, in our walks on shore, to remark the deception which takes place in estimating the distance and magnitude of objects, when viewed over an unvaried surface of snow. It was not uncommon for us to direct our steps towards what we took to be a large mass of stone, at the distance of half a mile

from us, but which we were able to take up in our hands after one minute's walk. This was more particularly the case when ascending the brow of a hill." Captain Parry adds, that this deception did not become less on account of the frequency with which its effects were experienced; and a late writer has used this as an objection to the doctrine lately referred to, respecting the influence of experience on our judgment of distance by vision. But this is evidently founded on a misconception of the effect of experience in such cases. Captain Parry could mean only, that he did not acquire the power of judging of the distance or magnitude of unknown objects. Had he been approaching an object by which he had once been deceived, knowing it to be the same, he would not have been deceived a second time; but, judging from its known magnitude, would have inferred its distance. Thus the result of experience is to enable us to judge of the distance of an object of known magnitude, or of the magnitude of an object at a known distance; but, in regard to objects of which both the distance and magnitude are unknown, it teaches us only not to trust the indications of vision.

In our judgment by vision of the magnitude of objects, again, we are much influenced by comparison with other objects, the magnitude of which is supposed to be known. I remember once having occasion to pass along Ludgate Hill, when the great door of St. Paul's was open, and several persons were

standing in it. They appeared to be very little children; but, on coming up to them, were found to be full-grown persons. In the mental process which here took place, the door had been assumed as a known magnitude, and the other objects judged of by it. Had I attended to the door being much larger than any door that one is in the habit of seeing, the mind would have made allowance for the apparent size of the persons; and, on the other hand, had these been known to be full-grown persons, a judgment would have been formed of the size of the door. On the same principle, travellers visiting the pyramids of Egypt have repeatedly remarked, how greatly the notion of their magnitude is increased, by a number of large animals, as camels, being assembled at their base.

There is something exceedingly remarkable in the manner, in which loss or diminution of one sense is followed by increase of the intensity of others, or rather, perhaps, by an increased attention to the indications of other senses. Blind persons acquire a wonderful delicacy of touch; in some cases, it is said, to the extent of distinguishing colours. Mr. Saunderson, the blind mathematician, could distinguish by his hand, in a series of Roman medals, the true from the counterfeit, with a more unerring discrimination than the eye of a professed virtuoso; and, when he was present at the astronomical observations in the garden of his college, he was accustom-

ed to perceive every cloud which passed over the sun. This remarkable power, which has sometimes been referred to an increased intensity of particular senses, in many cases evidently resolves itself into an increased habit of attention to the indications of all those senses which the individual retains. Two instances have been related to me of blind men who were much esteemed as judges of horses. One of these, in giving his opinion of a horse, declared him to be blind, though this had escaped the observation of several persons who had the use of their eyes, and who were with some difficulty convinced of it. Being asked to give an account of the principle on which he had decided, he said it was by the sound of the horse's step in walking, which implied a peculiar and unusual caution in his manner of putting down his feet. The other individual, in similar circumstances, pronounced a horse to be blind of one eye, though this had also escaped the observation of those concerned. When he was asked to explain the facts on which he formed his judgment, he said, he felt the one eye to be colder than the other. It is related of the late Dr. Moyse, the well-known blind philosopher, that he could distinguish a black dress on his friends by its smell; and there seems to be good evidence that blind persons have acquired the power of distinguishing colours by the touch. In a case of this kind, mentioned by Mr. Boyle, the individual stated that black imparted to his sense of

touch the greatest degree of asperity, and blue the least. Professor Upham, of the United States, mentions of a blind girl in the Hartford Asylum, that, when the baskets of linen are weekly brought from the laundress, she selects her own articles without hesitation, however widely they may be dispersed among the mass. Dr. Rush relates of two blind young men, brothers, of the city of Philadelphia, that they knew when they approached a post in walking across a street, by a peculiar sound which the ground under their feet emitted in the neighbourhood of the post; and that they could tell the names of a number of tame pigeons, with which they amused themselves in a little garden, by only hearing them fly over their heads. I have known several instances of persons affected with that extreme degree of deafness, which occurs in the deaf and dumb, who had a peculiar susceptibility to particular kinds of sounds, depending apparently upon an impression communicated to their organs of touch or simple sensation. They could tell, for instance, the approach of a carriage in the street without seeing it, before it was taken notice of by persons who had the use of all their senses. An analogous fact is observed in the habit acquired by the deaf and dumb, of understanding what is said to them by watching the motion of the lips of the speaker. Examples still more wonderful are on record, but certainly require confirmation. A story, for instance, has lately been men-

tioned, in some of the medical journals, of a gentleman in France, who lost every sense, except the feeling of one side of his face; yet it is said that his family acquired a method of holding communication with him, by tracing characters upon the part which retained its sensation.

Much ingenuity has been bestowed upon attempts to explain how, with two eyes, we see only one object; and why that object is seen erect, when we know that the image on the retina is inverted. All that need be said upon the subject, and all that can properly be said, appears to be, that such is the constitution of our nervous system. It is on the same principle, that by the sense of touch, in which may be concerned a thousand or ten thousand distinct points of contact, we receive the impression of only one body; or, what perhaps may appear a more strictly analogous case, we receive the impression of but one body, though we grasp the substance with two hands, or with ten distinct fingers. For the healthy perception in both these cases, however, a certain arrangement is required, which we may call the natural harmony of the nervous system; and when this harmony is disturbed, the result is remarkably altered. Thus, squinting produces the vision of a double image, because the images fall upon what we may call unharmonizing points of the retina; and the same principle may be illustrated, in a very curious manner, by a simple experiment with the

sense of touch. If a small round body, such as a pea, be laid upon the palm of the one hand, and rolled about between the first and second fingers of the other, in their natural position, one pea only is felt; but, if the fingers are crossed, so that the pea is rolled between the opposite surfaces of the two fingers, a most distinct impression of two peas is conveyed. A very unusual affection has also been communicated to me, being an example of double hearing. It occurred during fever, and was particularly remarked in regard to the striking of a clock;—every stroke was heard repeated.

Of the whole of the remarkable process of sensation and perception, we know nothing but the facts, —that certain impressions made upon the organs of sense are followed by certain perceptions in the mind; and that this takes place, in some way, through the medium of the brain and nervous system. We are in the habit of saying, that the impressions are conveyed to the brain; but, even in this, we probably advance a step beyond what is warranted. We know that the nerves derive their influence from their connexion with the brain, or as forming along with it one great medium of sensation; but we do not know, whether impressions, made upon the nervous fabric connected with the organs of sense, are conveyed to the brain; or whether the mind perceives them directly, as they are made upon the organs of sense. The whole subject is one of those mysteries which

are placed above our reach, and in which we cannot advance a single step beyond the knowledge of the facts. Any attempt to speculate upon it is therefore to be considered as contrary to the first principles of philosophical inquiry. We must simply receive the facts as of that class which we cannot account for in the smallest degree; and the evidence which we derive from our senses, of the existence and properties of the things of the material world, is to be recognised as one of those fundamental laws of belief, which admit of no other proof than that which is found in the universal conviction of mankind.

Before concluding the subject of perception, it remains to be noticed, that a certain voluntary effort is required for the full exercise of it; or, at least, for that degree of perception which leaves an impression capable of being retained. It is familiar to every one, that when the mind is closely occupied, numerous objects may pass before our eyes, and circumstances be talked of in our hearing, of which we do not retain the slightest recollection; and this is often in such a degree as implies, not a want of memory only, but an actual want of the perception of the objects. We cannot doubt, however, that there was the sensation of them; that is, the usual impression made upon the eye in the one case, and the ear in the other. What is wanting is a certain effort of the mind itself, without which sensation is not necessarily followed by perception;—this is what we call *Atten-*

tion. It is a state or act of the mind which is exercised by different individuals in very different degrees. It is much influenced by habit; and though it may not often be wanting in such a degree as to prevent the perception of objects, it is often deficient in a manner which prevents the recollection of them, and consequently has an extensive influence upon the intellectual character.

The effect of attention is illustrated by various mental phenomena of daily occurrence. If we are placed in such a situation that the eye commands an extensive landscape, presenting a great variety of objects, or the wall of an apartment covered with pictures, we have the power of fixing the mind upon one object in such a manner that all the rest become to us nearly as if they did not exist. Yet we know that they are actually seen, as far as the mere sense of vision is concerned; that is, images of all of them are formed upon the retina; but they are not objects of attention, or of that peculiar voluntary effort of mind which is necessary for the full perception of them. In the same manner, a practised musician can, in the midst of a musical performance, direct his attention to one part, such as the bass,—can continue this for such a time as he pleases, and then again enjoy the general harmony of the whole. On the same principle, the mind may be so intensely fixed upon something within itself, as an object of conception or memory, or a process of reasoning, as

to have no full perception of present external impressions. We shall afterwards have occasion to refer to a state of mind in which this exists in such a degree, that objects of conception or memory are believed to have a real and present existence ; and in which this erroneous impression is not corrected by impressions from external things :—this occurs in insanity.

Attention is very much influenced by habit, and connected with this subject there are some facts of great interest. There is a remarkable law of the system by which actions, at first requiring much attention, are, after frequent repetition, performed with a much less degree of it, or without the mind being conscious of any effort. This is exemplified in various processes of daily occurrence, as reading and writing, but most remarkably in music. Musical performance at first requires the closest attention, but the effort becomes constantly less, until it is often not perceived at all ; and a lady may be seen running over a piece of music on the piano, and at the same time talking on another subject. A young lady, mentioned by Dr. Darwin, executed a long and very difficult piece of music, with the utmost precision, under the eye of her master ; but seemed agitated during the execution of it, and when she had concluded, burst into tears. It turned out that her attention had, during the whole time, been intensely occupied with the agonies of a favourite canary bird,

which at last dropt dead in its cage. We see the same principle exemplified in the rapidity with which an expert arithmetician can run up a long column of figures without being conscious of the individual combinations. It is illustrated in another manner by the feats of jugglers, the deception produced by which depends upon their performing a certain number of motions with such rapidity, that the attention of the spectators does not follow all the combinations.

In teaching such arts as music or arithmetic, this principle is also illustrated; for the most expert arithmetician or musical performer is not necessarily, and perhaps not generally, the best teacher of the art; but he, who, with a competent knowledge of it, directs his attention to the individual minute combinations through which it is necessary for the learner to advance.

In processes more purely intellectual, we find the influence of habit brought under our view in a similar manner, particularly in following the steps of a process of reasoning. A person little accustomed to such a process advances step by step, with minute attention to each as he proceeds; while another perceives at once the result, with little consciousness of the steps by which he arrived at it. For this reason, also, it frequently happens, that, in certain departments of science, the profound philosopher makes a bad teacher. He proceeds too rapidly for his audience, and without

sufficient attention to the intermediate steps by which it is necessary for them to advance; and they may derive much more instruction from an inferior man, whose mental process on the subject approaches more nearly to that which, in the first instance, must be theirs. We remark the same difference in public speaking and in writing; and we talk of a speaker or a writer who is easily followed, and another who is followed with difficulty. The former retards the series of his thoughts, so as to bring distinctly before his hearers or his readers every step in the mental process. The latter advances without sufficient attention to this, and consequently can be followed by those only, who are sufficiently acquainted with the subject to fill up the intermediate steps, or not to require them.

There is a class of intellectual habits directly the reverse of those now referred to; namely, habits of inattention, by which the mind, long unaccustomed to have the attention steadily directed to any important object, becomes frivolous and absent, or lost amid its own waking dreams. A mind in this condition becomes incapable of following a train of reasoning, and even of observing facts with accuracy, and tracing their relations. Hence nothing is more opposed to the cultivation of intellectual character; and when such a person attempts to reason, or to follow out a course of investigation, he falls into slight and partial views, unsound deductions, and frivolous argu-

ments. This state of mind, therefore, ought to be carefully guarded against in the young; as, when it is once established, it can be removed only by a long and laborious effort, and after a certain period of life is probably irremediable.

In rude and savage life remarkable examples occur, of the effect of habits of minute attention to those circumstances to which the mind is intensely directed, by their relation to the safety or advantage of the observer. The American hunter finds his way in the trackless forests by attention to minute appearances in the trees, which indicate to him the points of the compass. He traces the progress of his enemies or his friends by the marks of their footsteps; and judges of their numbers, their haltings, their employments, by circumstances which would entirely escape the observation of persons unaccustomed to a mode of life requiring such exercises of attention. Numerous examples of this kind are mentioned by travellers, particularly among the original natives of America.

OF FALSE PERCEPTIONS.

Before leaving this subject, it is necessary to refer to some remarkable facts respecting perceptions taking place, without the presence of any external

body corresponding with them. These are called false perceptions, and they are usually referred to two classes; namely, those arising in the organs of sense, in which the mind does not participate; and those which are connected with hallucination of mind, or a belief of the real existence of the object. The former only belong to this part of the subject. The latter will be referred to in another part of our inquiry, as they do not consist of false impressions on the senses, but depend upon the mind mistaking its own conceptions for real and present existences.

Of false perceptions, properly so called, the most familiar are the *muscæ volitantes* floating before the eyes, and sounds in the ears resembling the ringing of bells, or the noise of a waterfall. Changes are also met with in the organs of sense giving rise to remarkable varieties of perception. Dr. Falconer mentions a gentleman who had such a morbid state of sensation that cold bodies felt to him as if they were intensely hot. A gentleman mentioned by Dr. Conolly, when recovering from measles, saw objects diminished to the smallest imaginable size; and a patient mentioned by Baron Larry, on recovering from amaurosis, saw men as giants, and all objects magnified in a most remarkable manner: it is not mentioned how long these peculiarities continued. This last peculiarity of perception occurred also to a particular friend of mine in recovering from typhus fever. His own body appeared to him to be about ten feet

high. His bed seemed to be seven or eight feet from the floor, so that he felt the greatest dread in attempting to get out of it; and the opening of the chimney of his apartment appeared as large as the arch of a bridge. A singular peculiarity of this case, however, was, that the persons about him with whom he was familiar, did not appear above their natural size. But the most interesting phenomena, connected with affections of this kind, are furnished by the various modifications of spectral illusions. These are referable to three classes.

I. Impressions of visible objects remaining for some time after the eye is shut, or has been withdrawn from them; generally accompanied by some remarkable change in the colour of the objects. Various interesting experiments of this kind are related by Dr. Darwin; one of the most striking is the following:—"I covered a paper about four inches square with yellow, and with a pen filled with a blue colour, wrote upon the middle of it the word BANKS in capitals; and sitting with my back to the sun, fixed my eyes for a minute exactly on the centre of the letter N in the word. After shutting my eyes, and shading them somewhat with my hand, the word was distinctly seen in the spectrum, in yellow colours on a blue ground; and then on opening my eyes on a yellowish wall at twenty feet distance, the magnified name of BANKS appeared on the wall written in

golden characters."—A friend of mine had been, one day, looking intensely at a small print of the Virgin and child, and had sat bending over it for some time. On raising his head, he was startled by perceiving at the farther end of the apartment a female figure of the size of life, with a child in her arms. The first feeling of surprise having subsided, he instantly traced the source of the illusion, and remarked, that the figure corresponded exactly with that which he had contemplated in the print, being what painters call a kit-cat figure, in which the lower parts of the body are not represented. The illusion continued distinct for about two minutes. Similar illusions of hearing are met with, though less frequently than those of vision. A gentleman, recently recovered from an affection of the head, in which he had been much reduced by bleeding, had occasion to go into a large town a few miles from his residence. His attention was there attracted by the bugle of a regiment of horse, sounding a particular measure which is used at changing guard in the evening. He assured me, that this sound was, from that time, never out of his ears for about nine months. During all this period he continued in a very precarious state of health; and it was only as his health became more confirmed, that the sound of the bugle gradually left him. In regard to ocular spectra, another fact of a very singular nature appears to have been first observed by Sir Isaac Newton,—namely,

that when he produced a spectrum of the sun by looking at it with the right eye, the left being covered, upon uncovering the left, and looking upon a white ground, a spectrum of the sun was seen with it also. He likewise acquired the power of recalling the spectra after they had ceased, when he went into the dark, and directed his mind intensely, "as when a man looks earnestly to see a thing which is difficult to be seen." By repeating these experiments frequently, such an effect was produced upon his eyes, "that for some months after," he says, "the spectrum of the sun began to return, as often as I began to meditate upon the phænomena, even though I lay in bed at midnight with my curtains drawn."

II. Impressions of objects recently seen returning after a considerable interval. Various interesting examples of this kind are on record. Dr. Ferriar mentions of himself, that, when about the age of 14, if he had been viewing any interesting object in the course of the day, as a romantic ruin, a fine seat, or a review of troops, so soon as evening came, if he had occasion to go into a dark room, the whole scene was brought before him with a brilliancy equal to what it possessed in day-light, and remained visible for some minutes.

III. False perceptions arising in the course of some bodily disorder, generally fever. A lady, whom

I attended some years ago, in a slight feverish disorder, saw distinctly a party of ladies and gentlemen sitting round her bedchamber, and a servant handing something to them on a tray. The scene continued in a greater or less degree for several days, and was varied by spectacles of castles and churches of a very brilliant appearance, as if they had been built of finely-cut crystal. The whole was in this case entirely a visual phantasm, for there was no hallucination of mind. On the contrary, the patient had from the first a full impression that it was a morbid affection of vision, connected with the fever, and amused herself and her attendants, by watching and describing the changes in the scenery.—A gentleman, who was also a patient of mine, of an irritable habit, and liable to a variety of uneasy sensations in his head, was sitting alone in his dining-room in the twilight, the door of the room being a little open: He saw distinctly a female figure enter, wrapped in a mantle, and the face concealed by a large black bonnet. She seemed to advance a few steps towards him, and then stop. He had a full conviction, that the figure was an illusion of vision, and amused himself for some time by watching it; at the same time observing that he could see through the figure, so as to perceive the lock of the door and other objects behind it. At length, when he moved his body a little forward, it disappeared. The appearances in these two cases were entirely visual illusions, and probably consisted

in the renewal of real scenes of figures, in a manner somewhat analogous to those in Dr. Ferriar's case, though the renewal took place after a longer interval. When there is any degree of hallucination of mind, so that the phantasm is believed to have a real existence, the affection is entirely of a different nature, as will be more particularly mentioned under another part of our subject.

False perceptions may be corrected by one of three methods;—by the exercise of other senses;—by a comparison with the perceptions of other persons;—and by an exercise of judgment. If I suspect that my eye deceives me, I apply the hand, with the perfect conviction of the improbability that the two senses should be deceived at once. If this cannot be done, I appeal to the impressions of some other persons, with an equally strong conviction, that the same sense will not be deceived in the same manner in several persons at once. Or I may do it in another way, by a reference to some known and fixed object. Suppose, for example, I see two objects, where I imagine there should be but one, and suspect a visual deception: I turn my eyes to some object which I know to be single,—such as the sun: If I see the sun double, I know that there is a delusion of vision; if I see the sun single, I conclude the original perception to be correct. These processes imply a certain exercise of judgment; and there are other cases

in which the same conviction may arise from an exercise of judgment alone, without any process of this kind. In one of the cases now referred to, for example, the correction took place instantly, from observing that the lock of the door was seen as if through the figure.

SECTION II.

OF CONSCIOUSNESS AND REFLECTION.

Consciousness appears to mean, simply, the act of attending to what is passing in the mind at the time. That more extensive operation to which we ought to give the name of Reflection, as distinguished from simple consciousness, seems to be connected with a power of remembering past perceptions, and past mental processes,—of comparing them with present feelings, so as to trace between them a relation, as belonging to the same sentient being,—and, farther, of tracing the laws by which the mental processes themselves are regulated. It is employed also in tracing the relations and sequences of external things, and thus proves the source of certain notions expressive of these relations. It is therefore a compound operation of mind, including various mental

processes, especially consciousness, memory, and the act of comparison or judgment. The knowledge which we derive from this source, whether we call it consciousness or reflection, is referable to three heads.

I. A knowledge of the mental processes, and the laws and relations by which they are regulated;—a knowledge, for example, of the laws and facts relating to memory, conception, imagination, and judgment. These will be more particularly referred to in a subsequent part of our inquiry. In the same manner we acquire our knowledge of those which have been called the active and moral powers, as the desires, the affections, the will, &c.

II. Certain notions arising out of the exercise of the mental processes, in reference to the successions and relations of things;—our notion, for example, of time, arising out of memory and consciousness;—our notion of cause,—of motion,—number, duration, extension or space. From simple perception we seem to acquire a knowledge of external things as existing only at the moment; and from simple consciousness a knowledge of a mental impression as existing only at the moment.—Our notions of the succession of things, as implying time and motion, require the exercise of consciousness and memory; and our notions of cause, and the various other relations

of things to each other, require both memory and comparison. To the same head, in reference to another department of these faculties, belong our notions of truth and falsehood,—right and wrong. These result from a certain exercise of mind, aided by that remarkable principle in our constitution, which commonly receives the name of conscience.

III. With this exercise of the mental functions, there spring up in the mind certain convictions, or intuitive and instinctive principles of belief. They are the immediate result of a certain exercise of the understanding, but are not referable to any process of induction or chain of reasoning, and can be considered only as an original and fundamental part of our constitution. This is a subject of great and extensive importance, and the articles of belief which are referable to it, are chiefly the following:

(1.) A conviction of our own existence as sentient and thinking beings, and of mind as something distinct from the functions of the body.

(2.) A confidence in the evidence of our senses in regard to the existence and properties of external things; or a conviction that they have a real existence independent of our sensations.

(3.) A confidence in our own mental processes; —that facts, for example, which are suggested to us by our memory, really occurred.

(4.) A belief in our personal identity, derived

from the combined operation of consciousness and memory ; or a remembrance of past mental feelings, and a comparison of them with present mental feelings, as belonging to the same sentient being.

(5.) A conviction that every event must have a cause, and a cause adequate to the effect.

(6.) A confidence in the uniformity of the operations of nature ; or that the same cause, acting in the same circumstances, will always be followed by the same effect.

These first or intuitive principles of belief will be referred to in a more particular manner, when we come to speak of the use of reason in the investigation of truth. They are usually called First Truths, and will be seen to occupy a most important place as the foundation of all reasoning. Many ingenious but fallacious arguments were at one time wasted in attempts to establish them by processes of reasoning. These again were assailed by sophistical and sceptical writers, who easily succeeded in showing the fallacy of these arguments, and thus assumed the credit of undermining the authority of the truths themselves. All this species of sophistical warfare is now gone by ; and the most important era in the modern science of reasoning was when it was distinctly shown, that these first truths admit of no other evidence than the conviction which forces itself upon the understanding of all classes of men. Since that period it has been generally allowed, that they

admit of no proof by processes of reasoning; and, on the other hand, that they are entirely unaffected by the arguments by which all such reasoning was shown to be fallacious.

SECTION III.

OF TESTIMONY.

A very small portion of our knowledge of external things is obtained through our own senses; by far the greater part is procured through other men, and this is received by us on the evidence of testimony. But, in receiving facts in this manner, we usually proceed with more caution than when they come to us by our personal observation. We are much influenced, in the first place, by our confidence in the veracity of the narrator, and our knowledge of the opportunities which he has had of ascertaining the facts he professes to relate. Thus, if he be a person on whose testimony we have formerly received important statements, which have turned out to be correct, we are the more ready to receive his testimony again; if he be a stranger to us, we receive it with greater caution; if he has formerly misled us, we view it with suspicion, or reject it altogether.

But there is another principle of very extensive application in such cases, and which is in a great measure independent of the character of the narrator. In receiving facts upon testimony, we are much influenced by their accordance with facts with which we are already acquainted. This is what, in common language, we call their probability; and statements which are probable, that is, in accordance with facts which we already know, are received upon a lower degree of evidence than those which are not in such accordance, or which, in other words, appear to us in the present state of our knowledge to be improbable. Now this is a sound and salutary caution, but we should beware of allowing it to influence us beyond its proper sphere. It should lead us to examine carefully the evidence upon which we receive facts, not in accordance with those which we have already acquired; but we should beware of allowing it to engender scepticism. For, while an unbounded credulity is the part of a weak mind, which never thinks or reasons at all, an unlimited scepticism is the part of a contracted mind, which reasons upon imperfect data, or makes its own knowledge and extent of observation the standard and test of probability. An ignorant peasant may reject the testimony of a philosopher in regard to the size of the moon, because he thinks he has the evidence of his senses that it is only a foot in diameter; and a person, holding a respectable rank in society, is said to

have received with contempt the doctrine of the revolution of the earth on its axis, because he was perfectly satisfied that his house was never known to turn with its front to the north. When the king of Siam was told by a Dutch traveller, that, in Holland, at certain seasons of the year, water becomes so solid that an elephant might walk over it, he replied, "I have believed many extraordinary things which you have told me, because I took you for a man of truth and veracity, but now I am convinced that you lie." This confidence in one's own experience, as the test of probability, characterizes a mind which is confined in its views and limited in its acquirements; and the tendency of it would be the rejection of all knowledge, for which we have not the evidence of our senses. Had the king of Siam once seen water in a frozen state, he would not only have been put right in regard to this fact, but his confidence would have been shaken in his own experience as the test of probability in other things; and he would have been more disposed for the farther reception of truth upon the evidence of testimony.

Thus, progress in knowledge is not confined in its results to the mere facts which we acquire, but has also an extensive influence in enlarging the mind for the farther reception of truth, and setting it free from many of those prejudices which influence men who are limited by a narrow field of observation. There may even be cases in which, without any regard to

the veracity of the narrator, a cultivated mind perceives the elements of truth in a statement, which is rejected by inferior minds as altogether incredible. An ingenious writer supposes a traveller of rather doubtful veracity bringing into the country of Archimedes an account of the steam-engine. His statement is rejected by his countrymen as altogether incredible. It is entirely at variance with their experience, and they think it much more probable that the traveller should lie, than that such a thing should be. But, when he describes to Archimedes the arrangement of the machine, the philosopher perceives the result, and, without any consideration of the veracity of the narrator, decides, upon the evidence derived from the relation of the facts themselves, and their accordance with principles which are known to him, that the statement is unquestionably true.

This illustration leads to a principle of the utmost practical importance. In judging of the credibility of a statement, we are not to be influenced simply by our actual experience of similar events; for this would limit our reception of new facts to their accordance with those which we already know. We must extend our views much farther than this, and proceed upon the knowledge which we have derived from other sources, of the powers and properties of the agent to which the event is ascribed. It is on this principle that the account of the steam-engine would have appeared probable to Archimedes, while it was rejected

by his countrymen as absolutely incredible ; because he would have judged, not according to his experience of similar machinery, but according to his knowledge of the powers and properties of steam. In the same manner, when the king of Siam rejected, as an incredible falsehood, the account of the freezing of water, if there had been at his court a philosopher who had attended to the properties of heat, he would have judged in a different manner, though the actual fact of the freezing of water might have been as new to him as it was to the king. He would have recollected, that he had seen various solid bodies rendered fluid by the application of heat ; and that, on the abstraction of the additional heat, they again became solid. He would thus have argued the probability, that, by a farther abstraction of heat, bodies might become solid which are fluid in the ordinary temperature of the atmosphere. In this manner, the fact, which was rejected by the king, judging from his own experience, might have been received by the philosopher, judging from his knowledge of the powers and properties of heat,—though he had acquired this knowledge from events apparently far removed from that to which he now applied it.

The principle here referred to is independent altogether of the direct reliance which we have on testimony, in regard to things which are at variance with our experience, when we are satisfied that the testimony has the characters of credibility ; but even on

these grounds, we may perceive the fallacy of that application of the doctrine of probability which has been employed by some writers, in opposition to the truths of revealed religion and to the means by which they were promulgated, particularly the miracles of the sacred writings. Miracles, they contend, are deviations from the established course of nature, and are, consequently, contrary to our uniform experience. It accords with our experience that men should lie, and even that several men might concur in propagating the same lie; and, therefore, it is more probable that the narrators lied, than that the statement respecting miracles is true. Mr. Hume even went so far as to maintain, that a miracle is so contrary to what is founded upon firm and unalterable experience, that it cannot be established by any human testimony.

The fallacy of this argument may probably be maintained from the principles which have been stated. It is, in fact, the same mode of reasoning which induced the king of Siam to reject the statement of water becoming solid. This was entirely contradicted by his "firm and unalterable experience," and, therefore, could not be received, even upon the evidence of a man whom he had already recognised as a witness of unquestionable veracity, and upon whose single testimony he had received as truth "many extraordinary things." He thought it much more probable, that even this man lied, than that such a

statement could be true. Strictly speaking, indeed, the objection of Mr. Hume may be considered as little better than a play upon words. For what renders an occurrence miraculous is precisely the fact of its being opposed to uniform experience. To say therefore that miracles are incredible because they are contrary to experience, is merely to say, that they are incredible because they are miracles.

They who are imposed upon by such a sophism as this, do not, in the first place, attend to the fact, that the term experience, if so much is to be founded upon it, must be limited to the personal observation of every individual; that is, it can apply, in each particular case, only to the last fifty or sixty years at most, and to events which have happened during that period, at the spot where the individual was present. Whatever he knows of events which took place beyond this spot, or before that period, he knows, not from experience, but entirely from testimony: and a great part of our knowledge, of what we call the established course of nature, has been acquired in this manner. In the reception of new knowledge, then, an individual must either receive facts upon testimony, or believe nothing but that for which he has the evidence of his senses. It is unnecessary to state how much the latter supposition is at variance with the daily practice of every man; and how much information we are in the constant habit of receiving upon testimony, even in regard to things which are much

at variance with our personal observation. How many facts do we receive, in this manner, with unsuspecting confidence, on the testimony of the historian, in regard to the occurrences of ancient times; and on the testimony of the naturalist and the traveller, respecting the natural and civil history of foreign countries. How few persons have verified, by their personal observation, the wonders which we receive on the testimony of the astronomer;—and, even of the great phenomena of nature on the surface of our globe, how much do we receive upon testimony in regard to things which are widely at variance with our own experience. I need only mention the boiling springs of Iceland, and the phenomena of earthquakes and volcanoes. But, on the principles of Mr. Hume, these could not be believed. On the contrary, if one of our intelligent highlanders were hearing described to him the devastations of a volcano, he would point to his heath-covered mountain, as the basis of his "firm and unalterable experience," and declare it to be more probable, that travellers should lie, than that such a statement could be true.

The reception of facts upon the evidence of testimony must therefore be considered as a fundamental principle of our nature, to be acted upon whenever we are satisfied that the testimony possesses certain characters of credibility. These are chiefly referable to three heads;—that the individual has had sufficient opportunity of ascertaining the facts; that we

have confidence in his power of judging of their accuracy; and that we have no suspicion of his being influenced by passion or prejudice in his testimony, or in other words, that we believe him to be an honest witness. Our confidence is farther strengthened by several witnesses concurring in the same testimony, each of whom has had the same opportunities of ascertaining the facts, and presents the same characters of truth and honesty. On such testimony we are in the constant habit of receiving statements, which are much beyond the sphere of our personal observation, and widely at variance with our experience. These are the statements, which, for the sake of a name, we may call marvellous. In regard to such, the foundation of incredulity, as we have seen, is generally ignorance; and it is interesting to trace the principles by which a man of cultivated mind is influenced, in receiving upon testimony, statements which are rejected by the vulgar as totally incredible.

1. He is influenced by the recollection, that many things at one time appeared to him marvellous which he now knows to be true; and he thence concludes, that there may still be in nature many phenomena and many principles with which he is entirely unacquainted. In other words, he has learned from experience, not to make his own knowledge his test of probability.

2. He is greatly influenced by perceiving in the statement some element of probability, or any kind

of sequence or relation, by which the alleged fact may be connected with principles which are known to him. It is in this manner that the freezing of water, which was rejected by the king of Siam as an incredible falsehood, might have appeared credible to a philosopher who had attended to the properties of heat, because he would have perceived in the statement a chain of relations connecting it with facts which he knew to be true.

3. He is much guided by his power of discriminating the credibility of testimony, or of distinguishing that species and that amount of it, which he feels to be unworthy of absolute credit, from that on which he relies with as implicit confidence as on the uniformity of the course of nature. The vulgar mind is often unable to make the necessary discrimination in this respect, and therefore is apt to fall into one of the extremes of credulity or scepticism. Mr. Hume, indeed, himself admits that there is a certain amount of testimony on which he would receive a statement widely at variance with his own uniform experience, as in the hypothetical case which he proposes,—the account of a total darkness over the whole earth, continuing for eight days, two hundred years ago. The evidence which he requires for it is simply the concurrence of testimonies, namely, that all authors in all languages describe the event; and that travellers bring accounts from all quarters, of traditions of the occurrence being still strong and

lively among the people. On such evidence he admits that philosophers ought to receive it as certain.

These principles may be considered as the elements of our belief in regard to statements which are new to us; and it is interesting to remark how they balance and compensate each other. Thus, a statement which appears probable, or can be readily referred to known relations, is received upon a lower degree of testimony, as in the illustration respecting Archimedes and the steam-engine. Others, which we find greater difficulty in referring to any known principle, we may receive upon a certain amount of testimony, which we feel to be worthy of absolute confidence. But there may be others of so very extraordinary a kind, and so far removed from, or even opposed to, every known principle, that we may hesitate in receiving them upon any kind of testimony, unless we can discover in relation to them something on which the mind can fix as an element of moral probability.

This leads us to a very obvious distinction of extraordinary events,—into those which are only marvellous, and those which are to be considered miraculous. A marvellous event is one which differs in all its elements from any thing that we previously knew, without being opposed to any known principle. But a miraculous event implies much more than this, being directly opposed to what every man knows to be the established and uniform course of nature.

It is farther required that such an event shall be of so obvious and palpable a kind, that every man is qualified to judge of its miraculous character, or is convinced it could not happen from the operation of any ordinary natural cause.

In receiving a statement respecting such an event, we require the highest species of testimony, or that on which we rely with the same confidence as on the uniformity of the course of nature itself. But even with this amount of testimony, a doubt may still remain. For we have two amounts of probability which are equally balanced against each other; namely, the probability that such testimony should not deceive us, and the probability that there should be no deviation from the course of nature. The concurring evidence of numerous credible witnesses, indeed, gives a decided preponderance to the testimony; and upon a certain amount of testimony we might receive any statement, however improbable, as in the case admitted by Mr. Hume, of a universal darkness. But, though in such a case we might receive the statement as a fact which we could not dispute, the mind would be left in a state of absolute suspense and uncertainty, in regard to any judgment which we could form respecting it. Something more appears to be necessary for fixing the distinct belief of a miraculous interposition; and this is an impression of moral probability. This consists of two parts: (1.) A distinct reference of the event to a power

which we feel to be capable of producing it,—namely, a direct interposition of the Deity. (2.) The perception of an adequate object, or a conviction of high moral probability, that an interposition of Divine power might be exerted in such circumstances, or for the accomplishment of such an object. Such are the miracles of the sacred writings. As events opposed to the common course of nature, they are, by the supposition, physically improbable in the highest degree. Were they not so,—were they in the lowest degree probable according to our conceptions of the course of nature, they could not be miracles, and consequently could not answer the purpose for which they are intended. But, notwithstanding this species of improbability, they carry with them all the elements of absolute credibility,—namely, the highest species of testimony, supported by a moral probability which bears directly upon every element of the statement. This may be briefly referred to the following heads:—

1. The human mind had wandered far from truth respecting God; and, on the great questions of his character and will, a future state, and the mode of acceptance in his sight, the light furnished by reason among the wisest of men was faint and feeble. On points of such importance, there was the highest moral probability, that the Deity would not leave mankind in this state of darkness, but would communicate to them some distinct knowledge.

2. It is farther probable, that, if such a communication were made to man, it would be accompanied by prodigies or miraculous events, calculated to show beyond a doubt the immediate agency of God, and thus to establish the divine authority of the record.

3. There is no improbability that the power of the Deity should produce deviations from the usual course of nature, capable of answering such a purpose. For what we call the course of nature is nothing more than an order of events which he has established; and there is no improbability, that, for an adequate end, he might produce a deviation from this order.

4. An important branch of the moral probability of the whole statement of the sacred writings, arises from the character of the truths themselves, challenging the assent and approbation of every uncontaminated mind. This part of the subject resolves itself into three parts;—the truths relating to the character and perfections of the Deity; the high and refined morality of the gospel; and the adaptation of the whole provisions of Christianity to the actual condition of man as a moral being. The former carry a conviction of their truth to the mind of every candid inquirer; the two latter fix themselves upon the conscience or moral feelings of all classes of men, with an impression which is irresistible.

This mode of reasoning is not chargeable with that kind of fallacy which has sometimes been ascribed to

it, that it professes first to prove the doctrine by the miracle, and then to try the miracle by the doctrine. The tendency of it is only to deduce from the various elements which really enter into the argument, a kind of compound evidence, the strongest certainly which, on such a subject, the human mind is capable of receiving. It is composed of the character of the truths,—the moral probability of a revelation of clear knowledge on subjects of such infinite importance,—and the highest species of testimony for the miraculous evidence by which the revelation was accompanied. There are principles in our nature calculated to perceive the manner in which the different parts of such an argument harmonize with each other; and, upon every principle of correct reasoning, it is impossible to conceive any thing more highly calculated to challenge the serious attention and absolute conviction of every sound understanding.

This imperfect view of a deeply interesting subject, will be sufficient to show the fallacy of the objection which has been urged against the credibility of miracles,—that they are contrary to our unalterable experience of the established course of nature. There might have been some degree of plausibility in the argument, if these events had been alleged to have taken place in ordinary circumstances; but the case is essentially altered, and this kind of improbability is altogether removed, when, in the alleged deviation, a new agent is introduced entirely capable of

producing it. Such, as we have seen, are the miracles of the sacred writings; and the question in regard to their probability is, not whether they are probable, according to the usual course of nature, but whether they are probable in the circumstances in which they are said to have taken place, namely, in the case of a direct interposition of the Deity for certain great and adequate purposes. In such a case, our estimate of probability must be founded, according to the principles already stated, not upon our experience of similar events, but on the knowledge which we derive from other sources, of the power of the agent to whom the event is ascribed. Now the agent to whom miracles are ascribed is the Supreme Being, the creator of all things, the stupendous monuments of whose omnipotent power are before us, and within us, and around us. What we call the established course of nature is merely an order of events which he has appointed; and the question of probability is, whether it is probable, that for certain adequate purposes, he should produce a deviation from this order. For such a statement, indeed, we require strong, numerous, credible and concurring testimonies; but it comes to be simply a question of evidence; and there is no real improbability, that, in these circumstances, such events should take place.

In this manner, then, there is entirely removed from the statement the improbability which is founded upon the uniformity of the ordinary course of na-

ture; because it is not in the ordinary course of nature that the events are alleged to have taken place, but in circumstances altogether new and peculiar. The subsequent inquiry becomes, therefore, simply a question of evidence; and this evidence is derived from testimony. We are thus led to take a slight view of the grounds on which we estimate the credibility of testimony.

Testimony, we are told, is fallacious, and is liable to deceive us. But so are our senses;—they also may deceive, and perhaps have deceived us, as in the case of ocular spectra; but we do not, on that account, discredit the evidence of our eyes; we only take means, in certain cases, for correcting their indications by other senses, as by touching the object, or by a comparison with the visual impressions of other men; and, whatever probability there is, that the eyes of one man may be deceived in any one instance, the probability is as nothing, that both his sight and touch should be deceived at once; or that the senses of ten men should be deceived in the same manner at the same time. It is the same with regard to testimony. It may have deceived us in particular instances; but this applies to one species of testimony only; there is another species which never deceived us. We learn by experience to separate distinctly the one from the other, and to fix upon a species of testimony on which we rely with the same confidence as on the uniformity of the course of nature. Thus, if

we find a man who in other respects shows every indication of a sound mind, relating an event which happened under his own inspection, and in such circumstances that he could not possibly be deceived; if his statement be such as contributes in no respect to his credit or advantage, but, on the contrary, exposes him to ridicule, contempt, and danger; if, notwithstanding, he steadily perseveres in it, under every species of persecution, and even to the suffering of death;—to suppose such a testimony intended to deceive, would be to assume a deviation from the established course of human character, as remarkable as any event which it could possibly convey to us. This might be maintained in regard to one such testimony; but, if we find numerous witnesses agreeing in the same testimony, all equally informed of the facts, all showing the same characters of credibility, and without the possibility of concert or connivance, the evidence becomes not convincing only, but incontrovertible.

The grounds on which we receive with confidence the evidence of testimony, may therefore be briefly stated in the following manner:—

1. That the statement refers to a matter of fact,—that the fact was such as could be easily ascertained by the person who relates it,—and that he had sufficient opportunity of ascertaining it. When the statement includes a point of opinion, the case

comes under another principle; and we require, in the first instance, to separate what is opinion from what is fact.

2. That we have no reason to suspect the witness to be influenced by interest or passion in his evidence; or that he has any purpose to answer by it, calculated to promote his own advantage.

3. That various individuals, without suspicion of connivance, have concurred in the same statement. This is a point of the utmost importance; and, in cases in which we are satisfied that there could be no connivance, a degree of evidence is derived from the concurrence of testimonies, which may be often independent even of the credibility of the individual witnesses. For, though it were probable that each of them singly might lie, the chances that they should all happen to agree in the same lie, may be found to amount to an impossibility. On this subject, there is also a farther principle of the greatest interest, which has been well illustrated by Laplace, namely, that the more improbable a statement is, in which such witnesses agree, the greater is the probability of its truth. Thus we may have two men whom we know to be so addicted to lying, that we would not attach the smallest credit to their single testimony on any subject. If we find these concurring in a statement respecting an event which was highly probable, or very likely to have occurred at the time which they mention, we may still have a suspicion that

they are lying, and that they may have happened to concur in the same lie, even though there should be no supposition of connivance. But, if the statement was in the highest degree improbable, such as that of a man rising from the dead, we may feel it to be impossible that they could accidentally have agreed in such a statement; and, if we are satisfied that there could be no connivance, we may receive a conviction from its very improbability that it must be true. In cases of concurring testimonies, we expect that the witnesses shall agree in all essential and important particulars; and, on the other hand, evidence of the authenticity of testimony is sometimes derived from the various witnesses differing in trifling circumstances in such a manner, as, without weakening the main statement, tends to remove the suspicion of collusion or connivance.

4. In all matters of testimony, we are greatly influenced by our confidence in a certain uniformity of human character. We attach much importance, for example, to our previous knowledge of the narrator's character for veracity; and a man may have acquired such a character in this respect, that we confide in his veracity in every instance in which his testimony is concerned, with a confidence equal to that with which we rely on the uniformity of the course of nature. In such a case, indeed, we proceed upon a uniformity which applies only to a particular order, namely, those whom we consider as men of

veracity. But there is also a principle of uniformity which applies to the whole species; and in which we confide as regulating every man of sane mind. Thus, if the statement of a narrator contain circumstances tending to promote his own advantage, we calculate on the probability of fabrication, and reject his evidence, unless we had previously acquired absolute confidence in his veracity. But if, on the contrary, his statement operates against himself, conveying an imputation against his own character, or exposing him to contempt, ridicule, or personal injury, without any previous knowledge of his veracity, we are satisfied that nothing could make him adhere to such a testimony but an honest conviction of its truth.

5. A very important circumstance is the absence of any contradictory or conflicting testimony. This applies, in a striking manner, to the miraculous statements of the sacred writings; for, even on the part of those who were most interested in opposing them, there is no testimony which professes to show, that, at the time when the miracles are said to have taken place, they did not take place. It is, indeed, a remarkable circumstance, that the earliest writers against Christianity ascribe the miraculous events to the power of sorcery or magic, but never attempt to call them in question as matters of fact.

6. Much corroboration of testimony may often be obtained from our knowledge of facts of such a nature, as, without directly bearing upon the state-

ments to which the testimony refers, cannot be accounted for on any other supposition than the conviction of these statements being true. This principle applies, in a remarkable manner, to the miraculous histories of the sacred writings. We know, as a historical fact, the rapid manner in which the Christian faith was propagated in the early ages, against the most formidable opposition, and by means of the feeblest human instruments. We are told, that this was owing to the conviction produced by miraculous displays of divine power;—we feel that the known effect corresponds with the alleged cause; and that it cannot be accounted for on any other principle.

It does not belong to our present inquiry, to allude more particularly to the direct evidence by which the miracles of the sacred writings are supported; we merely refer, in this general manner, to the principles on which the evidence is to be estimated. A very interesting branch of the subject will come under our view, when we speak of memory and arbitrary association. We shall then see the irresistible importance of the commemorative rites of Christianity, by which the memory of these events has been transmitted from age to age, or rather from year to year; and by which our minds are carried backwards, in one unbroken series, to the time when the events occurred, and to the individuals who witnessed them. In this manner, also, is entirely

removed any feeling of uncertainty, which may attach to testimony, as we recede from the period at which the events took place, and as the individuals are multiplied through whom the account has been transmitted. Upon the whole, therefore, the evidence becomes so clear and conclusive, that we may say of those who reject it, what the great author of Christianity said, on another occasion,—"if they hear not these, neither will they be persuaded though one rose from the dead."

PART III.

OF THE INTELLECTUAL OPERATIONS.

THROUGH the various sources referred to in the preceding observations, we acquire the knowledge of a certain number of facts, relating either to the mind itself, or to things external to it. The next part of our inquiry refers to the operations, (to use a figurative expression,) which the mind performs upon the facts thus acquired. The term functions, or powers of mind, has often been applied to these operations; but, as we are not entitled to assume, that they are in fact separate functions in the usual acceptation of that expression, it is perhaps more correct, and accords better with our limited knowledge of mind, to speak simply of the operations which it is capable of performing upon a given series of facts. These seem to be chiefly referable to the following heads.

1. We remember the facts; and we can also recall them into the mind at pleasure. The former of

these operations is MEMORY; the latter is that modification of it which we call RECOLLECTION. But, besides this simple recollection of facts, we can recall a perception; that is, the impression of an actual scene which has been witnessed, or a person who has been seen, so as to place them, as it were, before the mind, with all the vividness of the original perception. This process is called CONCEPTION. It is often described as a distinct power, or a distinct operation of the mind; but it seems to be so nearly allied to memory, that it may be considered as a modification of it. It is the memory of a perception.

II. We separate facts from the relation in which they were originally presented to us, and contemplate some of them apart from the rest;—considering, for example, certain properties of bodies apart from their other properties. Among a variety of objects, we thus fix upon qualities, which are common to a certain number of them, and so arrange them into genera and species. This process is usually called ABSTRACTION.

III. We separate scenes or classes of facts into their constituent elements, and form these elements into new combinations, so as to represent to ourselves scenes, or combinations of events, which have no real existence. This is IMAGINATION.

IV. We compare facts with each other,—observe their relations and connexions,—and trace the results which follow particular combinations of them. We also observe their general characters, so as to deduce from the whole general facts or general principles. This is REASON or JUDGMENT.

In this arrangement, it will be observed, I confine myself entirely to facts. I do not say that the mind possesses distinct faculties, which we call memory, abstraction, imagination, and judgment,—for this at once leads into hypothesis; but simply, that, in point of fact, the mind remembers, abstracts, imagines, and judges. These processes appear to constitute distinct mental acts, which every one is conscious of who attends to the phenomena of his own mind. But beyond the simple facts we know nothing, and no human ingenuity can lead us one step farther. Some of the followers of Dr. Reid appear to have erred in this respect, by ascribing to the mind distinct faculties or functions, somewhat in the manner in which we ascribe to the body distinct senses. Dr. Brown, on the other hand, has shown much ingenuity in his attempts to simplify the arrangement of the mental processes, by referring them all to his two principles of simple and relative suggestion. But, without inquiring what has been gained to the science by this new phraseology, and avoiding entirely any system which seems to suppose distinct

functions of mind, I confine myself to facts respecting the actual mental *operations ;* and it appears to answer best the purposes of practical utility to speak of these operations in the arrangement, and by the names, which are commonly used by the generality of mankind.

SECTION I.

MEMORY.

By MEMORY, we retain the impression of facts or events ; and by RECOLLECTION we recall them into the mind by a voluntary effort. By CONCEPTION we recall perceptions, or the impression of actual scenes, persons, or transactions : thus a skilful painter can delineate from conception a landscape a considerable time after he has seen it, or the countenance of a friend who is dead or absent. These appear to be the leading phenomena which are referable to the head of memory.

There seem to be original differences in the power of memory, some individuals being remarkable for retentive memory, though not otherwise distinguished by their intellectual endowments. Thus, persons have been known to repeat a long discourse after once hearing it, or even a series of things without con-

nexion, as a long column of figures, or a number of words without meaning. There is on record the account of a man who could repeat the whole contents of a newspaper; and of another who could retain words that were dictated to him, without any connexion, to the amount of six thousand. A man mentioned by Seneca, after hearing a poet read a new poem, claimed it as his own; and, in proof of his claim, repeated the poem from beginning to end, which the author could not do. A similar anecdote is told of an Englishman, whom the king of Prussia placed behind a screen, when Voltaire came to read to him a new poem of considerable length. It has been alleged, that this kind of memory is generally connected with inferiority of the other intellectual powers; but there appears to be no foundation for this. For, though the mere memory of words may be met with in a high degree in persons of defective understanding, it is also true that men of high endowments have been remarkable for memory. It is said that Themistocles could name all the citizens of Athens, amounting to twenty thousand; and that Cyrus knew the name of every soldier in his army.

The late Dr. Leyden was remarkable for his memory. I am informed, through a gentleman who was intimately acquainted with him, that he could repeat correctly a long act of parliament, or any similar document, after having once read it. When he was, on one occasion, congratulated by a friend on his re-

markable power in this respect, he replied, that instead of an advantage it was often a source of great inconvenience. This he explained by saying, that when he wished to recollect a particular point in any thing which he had read, he could do it only by repeating to himself the whole from the commencement till he reached the point which he wished to recall.

We may find a mere local memory combined with very little judgment;—that is, the power of remembering facts in the order in which they occurred, or words in the order in which they were addressed to the individual; but that kind of memory which is founded, not upon local or incidental relations, but upon real analogies, must be considered as an important feature of a cultivated mind, and as holding an important place in the formation of intellectual character. The former kind of memory, however, is often the more ready, and is that which generally makes the greater show, both on account of its readiness, and likewise because the kind of facts with which it is chiefly conversant are usually those most in request in common conversation.

These facts are referred to as matters of curiosity only. The points of real interest and practical importance, in regard to memory, respect the manner in which it is influenced by the intellectual habits of individuals,—and the principles on which it may be improved. These are referable chiefly to two heads,—ATTENTION, and ASSOCIATION.

Memory is very much influenced by ATTENTION, or a full and distinct perception of the fact or object with a view to its being remembered; and by the perception being kept before the mind, in this distinct manner, for a certain time. The distinct recollection of the fact, in such cases, is generally in proportion to the intensity with which it has been contemplated; and this is also very much strengthened by its being repeatedly brought before the mind. Most people, accordingly, have experienced, that a statement is more strongly impressed upon the memory by being several times repeated to others. It is on the same principle, that memory is greatly assisted by writing down the object of our knowledge, especially if this be done in a distinct and systematic manner. A subject also is more distinctly conceived, and more correctly remembered, after we have instructed another person in it. Such exercises are not strictly to be considered as helps to the memory, but as excitements to attention; and as thus leading to that clear and full comprehension of the subject, which is required for the distinct remembrance of it.

It is familiar to every one that there are great differences in memory, both in respect to the facility of acquirement, and the power of retention. In the former there appear to be original differences,—but a great deal also depends upon habit. In the power of retention much depends, as we shall afterwards see, upon the habit of correct association; but, besides

this, there are facts which seem to show a singular connexion with the manner in which the acquisition was made. The following fact was communicated to me by an able and intelligent friend, who heard it from the individual to whom it relates. A distinguished theatrical performer, in consequence of the sudden illness of another actor, had occasion to prepare himself, on a few hours notice, for a part which was entirely new to him ; and the part was long and rather difficult. He acquired it in a very short time, and went through it with perfect accuracy, but immediately after the performance forgot it to such a degree, that though he performed the character for several days in succession, he was obliged every day to study it anew. Characters which he had acquired in a more deliberate manner he never forgets, but can perform them at any time without a moment's preparation. When questioned respecting the mental process which he employed the first time he performed this part, he says, that he lost sight entirely of the audience, and seemed to have nothing before him but the pages of the book from which he had learnt it ; and that, if any thing had occurred to interrupt this illusion, he should have stopt instantly.

That degree of attention, which is required for the full remembrance of a subject, is to be considered as a voluntary act on the part of the individual ; but the actual exercise of it is influenced, in a great measure, by his previous intellectual habits. Of four

individuals, for example, who are giving an account of a journey through the same district, one may describe chiefly its agricultural produce; another, its mineralogical characters; a third, its picturesque beauties; while the fourth may not be able to give an account of any thing except the state of the roads and the facilities for travelling. The same facts or objects must have passed before the senses of all the four; but their remembrance of them depends upon the points to which their attention was directed. Besides the manner here alluded to, in which the attention is influenced by previous habits or pursuits, some persons have an active inquiring state of mind, which keeps the attention fully engaged upon whatever is passing before them; while others give way to a listless inactive condition, which requires to be strongly excited, before the attention is roused to the degree required for remembrance. The former, accordingly, remember a great deal of all that passes before them, either in reading or observation. The latter are apt to say that they are deficient in memory; their deficiency, however, is not in memory but in attention; and this appears from the fact, that they do not forget any thing which deeply engages their feelings, or concerns their interest.

The habit of listless inactivity of mind should be carefully guarded against in the young; and the utmost care should be taken to cultivate the opposite, namely, the habit of directing the mind intensely to

whatever comes before it, either in reading or observation. This may be considered as forming the foundation of sound intellectual character.

Next to the effect of attention, is the remarkable influence produced upon memory by ASSOCIATION. This principle holds so important a place in relation to the mental operations, that some philosophers have been disposed to refer to it nearly all the phenomena of mind; but, without ascribing to it this universal influence, its effects are certainly very extensive, and the facts connected with it present a subject of peculiar interest.

The principle of association is founded upon a remarkable tendency, by which two or more facts or conceptions, which have been contemplated together, or in immediate succession, become so connected in the mind, that one of them at a future time recalls the others, or introduces a train of thoughts, which, without any mental effort, follow each other in the order in which they were originally associated. This is called the association of ideas, and various phenomena of a very interesting kind are connected with it.

But, besides this tendency, by which thoughts formerly associated are brought into the mind in a particular order, there is another species of association, into which the mind passes spontaneously, by a suggestion from any subject which happens to be present to it. The thought or fact, which is thus

present, suggests another which has some kind of affinity to it; this suggests a third, and so on, to the formation of a train or series which may be continued to a great length. A remarkable circumstance likewise is, that such a train may go on with very little consciousness of, or attention to it; so that the particulars of the series are scarcely remembered, or are traced only by an effort. This singular fact every one must have experienced in that state of mind which is called a reverie. It goes on for some time without effort, and with little attention; at length the attention is roused, and directed to a particular thought which is in the mind, without the person being able at first to recollect what led him to think of that subject. He then, by a voluntary effort, traces the chain of thoughts backwards, perhaps through a long series, till he arrives at a subject of which he has a distinct remembrance as having given rise to it.

It is impossible distinctly to trace the principles which lead to the particular chain of thoughts which arise in a case of this kind. It is probably much influenced by the previous intellectual habits of the individual; and, perhaps in many instances, is guided by associations previously formed. There are also among the facts or thoughts themselves, certain principles of analogy, by which one suggests another without that kind of connexion which is established by previous proximity. These have usually been

called *principles of association*, or, according to the phraseology of Dr. Brown, principles of simple suggestion. They have been generally referred to four heads,—resemblance,—contiguity in time and place,—cause and effect,—and contrast: and others have reduced them to three, considering contiguity, and cause and effect, as referable to the same head. On these principles, then, one thought may suggest another which has some relation to it, either in the way of resemblance, contiguity, cause, effect, or contrast. But still the question recurs, what gives rise to the occurrence of one of these relations in preference to the others. This may depend, in some instances, on previous habits of thought, and peculiarities of mental temperament; and in other cases associations may be more apt to occur, according as some analogous association may have been more recently formed, more lively, or more frequently repeated. When the common topic of the weather, for example, is introduced in conversation, or presented to the mind, the agriculturist will naturally refer to its influence on vegetation; the physician, to its effects on the health of the community; the man of pleasure may think only of its reference to the sports of the field; the philosopher may endeavour to seek for its cause in some preceding atmospheric phenomena; and another person of certain habits of observation may compare or contrast it with the weather of the same period in a preceding year. Thus, in

five individuals, the same topic may give rise to five trains of thought, perfectly distinct from each other, yet each depending upon a very natural and obvious principle of suggestion. In other instances, it is impossible to trace the cause which leads the mind into peculiar and unusual associations. The following example from Hobbes has been frequently referred to. "In a company in which the conversation turned on the civil war, what could be conceived more impertinent, than for a person to ask abruptly, what was the value of a Roman denarius. On a little reflection, however, I was easily able to trace the train of thought which suggested the question; for the original subject of discourse naturally introduced the history of the King, and of the treachery of those who surrendered his person to his enemies; this again introduced the treachery of Judas Iscariot, and the sum of money which he received for his reward. And all this train of ideas passed through the mind of the speaker in a twinkling, in consequence of the velocity of thought." Mr. Stewart adds, in relation to this anecdote, "it is by no means improbable, that if the speaker had been interrogated about the connexion of ideas which led him aside from the original topic of discourse, he would have found himself, at first, at a loss for an answer."

In the mental process now referred to, it is probable that the term *suggestion* is much more correct than *association*, which has often been applied to it.

For in the cases which belong to this class, the facts or thoughts suggest each other, not according to any connexion or association which the mind had previously formed between them, but according to some mental impression or emotion, which by a law of our constitution proves a principle of analogy or suggestion. We readily perceive how this takes place in regard to circumstances which are allied to each other by resemblance, contiguity, cause, or effect; and the suggestion of contrast must also occur to every one as by no means unnatural. Thus, the sight of a remarkably fat man may recall to us the thought of another man we had lately seen, who was equally remarkable for his leanness : the playfulness and mirth of childhood may suggest the cares and anxieties of after-life ; and an instance of conduct, which we greatly disapprove, may lead us to recollect how very differently another individual conducted himself in similar circumstances.

In a practical view, the subject of association leads us chiefly to a consideration of the manner, in which facts are so associated in the mind as to be recalled by means of the connexion ; in other words, the influence of association upon memory. In this view, associations are distinctly referable to three classes :

I. Natural or philosophical association.

II. Local or incidental association.

III. Arbitrary or fictitious association.

A variety of mental phenomena of the most interesting kind will be found connected with the subjects referred to under these classes. The principle on which they all depend, is simply the circumstance of two or more facts, thoughts, or events, being contemplated together by the mind, though many of them have no relation to each other except this conjunction. The strength of the association is generally in proportion to the intensity of the mental emotion; and is likewise in a great measure regulated by the length of time, or the number of times, in which the facts have been contemplated in this connexion. Astonishing examples may be often met with, of facts or occurrences, which have long ceased to be objects of simple memory, being brought up in this manner by association, though they had not passed through the mind for a very long time.

I. Natural or Philosophical Association takes place when a fact or statement, on which the attention is fixed, is, by a mental process, associated with some fact previously known, to which it has a relation, or with some subject which it is calculated to illustrate. The fact so acquired is thus, to use a figurative expression, put by in its proper place in the mind, and can afterwards be recalled by means of the association.

The formation of associations, in this manner, is of course influenced in a very great degree by pre-

vious mental habits, pursuits, or subjects of reflection; and, according to the nature and the variety of these pursuits or subjects of thought, facts, which by some are passed by and instantly forgotten, may be fixed upon by others with eager attention, and referred to some principle which they are calculated to illustrate. Examples of this kind must be familiar to every one; I may mention the following: In a party of gentlemen the conversation turned on the warlike character of the Mahrattas, as compared with the natives of Lower India, and the explanation given of it by an author who refers it to their use of animal food, from which the Hindoos are said to be prohibited by their religion. A doubt was started respecting the extent to which Hindoos are prohibited from the use of animal food; some were of one opinion, and some of another, and the point was left undecided. Reading, soon after, the Journal of Bishop Heber, I found it stated, that at one time during his journey, when a large supply of meat was brought to him, he ordered three lambs to be sent to his Hindoo attendants, and that the gift was received with every expression of gratitude. On another occasion, such a fact might have been passed by without producing any impression; or it might have been slightly associated with the good Bishop's attention to the comfort of all around him, but not remembered beyond the passing moment. In connexion with the discussion now mentioned, it became a fact of

great interest, and never to be forgotten; and led to inquiry after more precise information on the subject to which it related.

This trifling example may serve to illustrate the principle, that the remembrance of insulated facts does not depend merely upon the degree of attention directed to them, but also on the existence in the mind of subjects of thought with which the new fact may be associated. Other facts, as they occur, will afterwards be added from time to time, giving rise to a progressive increase of knowledge in a mind in which this mental process is regularly carried on. This habit of attention and association ought therefore to be carefully cultivated, as it must have a great influence on our progress in knowledge, and likewise on the formation of intellectual character, provided the associations be made upon sound principles, or according to the true and important relations of things. It is also closely connected with that activity of mind which is ever on the alert for knowledge, from every source that comes within its reach; and that habit of reflection, which always connects with such facts the conclusions to which they lead, and the views which they tend to illustrate. On this principle also, every new fact which is acquired, or every new subject of thought which is brought before the mind, is not only valuable in itself, but also becomes the basis or nucleus of farther information. Minds which are thus furnished with the requisite foundation of know-

ledge, and act uniformly upon these principles of enlarging it, will find interesting matter to be associated and remembered, where others find only amusement for a vacant hour, which passes away and is forgotten. There is also another respect in which the habit of correct and philosophical association assists the memory, and contributes to progress in knowledge. For by means of it, when applied to a great mass of facts relating to the same subject, we arrive at certain general facts, which represent a numerous body of the individuals, and the remembrance of which is equivalent to the remembrance of the whole.

The associations referred to under this first head, arise out of the real relations of facts to each other, or to subjects of thought previously existing in the mind. The particular train of association, therefore, which is formed from the same facts by different individuals, may vary exceedingly. Thus, the same facts may often admit of various applications, or in other words, of being associated in various ways, by different persons, according to their intellectual habits, or by the same person at different times, according to the subject of thought which happens to be more immediately present.

When various facts have been associated in the mind, in the manner now referred to, they form a series which hang together and recall each other in a very remarkable manner. There are two ways in

which this takes place, which may be called voluntary and spontaneous. (1.) We call up facts by a voluntary effort, by directing the mind into particular trains of thought calculated to lead to those which we are in search of. This is what we call recollecting ourselves on a particular subject. We have an impression, perhaps, that the mind is in possession of information which bears upon the subject, but do not at the moment remember it; or we remember some circumstances, and wish to recall a more full and complete remembrance. We therefore commence a mental process which consists in putting in motion, to speak figuratively, a train of thoughts, or a series of associated facts, which we think calculated to lead us to the facts we wish to recall. (2.) Associations recur spontaneously, either when particular topics naturally leading to them are brought before the mind, in reading or conversation, or in that state in which the mind is left to follow, without any effort, the current of thoughts as they succeed each other. In the healthy state of the mind, we can give way to this spontaneous succession of thoughts; or we can check it at our pleasure, and direct the mind into some new train connected with the same subject, or arising out of it; or we can dismiss it altogether. While we allow it to go on, it does so, not only without effort, but often without consciousness; so that when the attention is, after some time, arrest-

ed by a subject of thought which is in the mind, we do not at first remember what led us to think of it, and begin to recollect ourselves by tracing the series backwards. In this state of mind, it is most interesting to observe the manner in which old associations are revived, and old recollections renewed, which seemed to have been lost and forgotten; and how facts and occurrences come into the mind which had not been thought of for many years. They are recalled, we scarcely know how, by some train of association which we can hardly trace, and which had long ceased to be the subject of any voluntary effort of attention. We shall again allude to this most interesting subject, in relation to the manner in which associations, long forgotten, are sometimes brought into the mind in dreaming, and in certain states of delirium.

The voluntary power over the succession of thoughts and associations which has now been alluded to, is a subject of extreme interest. We shall have occasion to refer to it again when we come to speak of a remarkable condition in which it is lost; and in which the mind is left entirely under the influence of the series of thoughts as they happen to succeed each other, according probably to old associations, without the power of arresting or varying it. This occurs in two very interesting mental conditions to be afterwards more particularly mentioned,—dreaming, and insanity.

II. Local or Incidental Association.—In the mental process referred to under the preceding head, facts or thoughts are associated according to certain real relations; though these, we have seen, may be various, and the particular relation which is fixed upon, in particular cases, depends upon the intellectual habits of the individual. In the class now to be mentioned, the associations are formed according to no other relations than such as are entirely local or casual. Thus, a fact, a thought, or a mental impression, is associated with the person by whom it was communicated, or the place where the communication was made; and is recalled to the mind when the place or person is seen, mentioned, or thought of. Some persons seem to form almost no other associations than those of this description. When a place which they had visited, for example, is spoken of, they immediately relate, in connexion with it, the persons whom they met there, incidents which occurred in their company, and opinions or statements which were mentioned in conversation with them; and from this, perhaps, they may branch off to other circumstances relating to these individuals, their families, or connexions.

These mere local associations, however, often make a very deep impression upon the mind; more vivid, certainly, than simple memory of the facts or transactions connected with them. Thus, we avoid a place which is associated with some painful recollection;

yet the very fact of avoiding it shows that we have a full remembrance of the circumstances, and, at the same time, a conviction that the sight of the spot would make the impression more vivid and more painful. After the death of a beloved child or a much-valued friend, we may retain a lively remembrance of them, and even anxiously cherish the impression of their endearing qualities; yet, after time has in some measure blunted the acuteness of feeling, the accidental discovery of some trifling memorial, strongly associated with the lamented object of our affection, produces a freshness and intensity of emotion, known only to those who have experienced it. This feeling is peculiarly strong, if the memorial has been long lost sight of, and discovered by accident,—because, as has been well remarked by Dr. Brown, it in this case presents the unmixed image of the friend with whom it is associated; whereas, a memorial, which has become familiar to us, is associated with other feelings not relating exclusively to him. Philosophers have endeavoured to explain the mental phenomenon here referred to by supposing, that, in such cases, the mingling of mental emotion with actual perception gives a feeling of reality to the emotion, and, for the time, a kind of belief of the existence of the object of it. This is sufficiently plausible, but, after all, amounts to little more than expressing the fact in other words, without conveying any real explanation.

Similar impressions, whether of a pleasurable or painful character, according to the original feeling which is thus recalled, are excited by the sight of a spot which we have visited while under the influence of strong emotion; by a tune,—a piece of poetry,—an article of dress, or the most trifling object with which, from incidental circumstances, the association was made. The effect of a particular tune on the Swiss regiments in foreign service, is familiar to every one; and a similar effect has been remarked, from a similar cause, among the Highland regiments of our own country. The feelings thus produced may be so vivid, as even to overpower present emotions; to excite pleasure amid circumstances of pain or depression; and to produce depressing and painful emotions, when all present circumstances are calculated to give satisfaction. Hence, it is probable that the principle might often be employed with much advantage, as a moral remedy, in various circumstances of depressing disease, as in the low state of fever, and certain conditions of insanity. A pleasing anecdote of this kind is mentioned by Dr. Rush. "During the time that I passed at a country school, in Cecil county in Maryland, I often went on a holyday, with my schoolmates, to see an eagle's nest upon the summit of a dead tree, in the neighbourhood of the school, during the time of the incubation of the bird. The daughter of the farmer, in whose field the tree stood, and with whom I became acquainted, married, and

settled in this city about forty years ago. In our occasional interviews, we now and then spoke of the innocent haunts and rural pleasures of our youth, and among others, of the eagle's nest in her father's field. A few years ago, I was called to visit this woman when she was in the lowest stage of typhus fever. Upon entering the room, I caught her eye, and, with a cheerful tone of voice, said only, *the eagle's nest.* She seized my hand, without being able to speak, and discovered strong emotions of pleasure in her countenance, probably from a sudden association of all her early domestic connexions and enjoyments with the words which I uttered. From that time, she began to recover. She is now living, and seldom fails, when we meet, to salute me with the echo of 'the eagle's nest.'"

There is even something in these mere local associations, which fixes an impression upon the mind, almost independent of memory, and upon a principle with which we are little acquainted. The following anecdote is, I believe, authentic, though I cannot at present refer to the work in which it is related. It is certainly one of the most extraordinary of its kind, and yet we see enough of the principle, in various instances, to give it a high degree of probability. A lady, in the last stage of a chronic disease, was carried from London to a lodging in the country:— there, her infant daughter was taken to visit her, and, after a short interview, carried back to town. The

lady died a few days after, and the daughter grew up without any recollection of her mother, till she was of mature age. At this time, she happened to be taken into the room in which her mother died, without knowing it to have been so;—she started on entering it, and, when a friend who was along with her, asked the cause of her agitation, replied, "I have a distinct impression of having been in this room before, and that a lady, who lay in that corner, and seemed very ill, leaned over me and wept."

The singular influence of local association is often illustrated by the most trivial occurrences. Walking in the street lately, I met a lady, whose face was familiar to me, but whom I could not name. I had, at the same time, an impression that I ought to have spoken to her, and to have inquired for some relative who had lately been my patient; but, notwithstanding repeated efforts, I could not recognise her, and passed on. Some time after, in passing along the road a few miles from town, my eye caught a cottage, to which I had been taken about six months before, to see a gentleman who had been carried into it in a state of insensibility, in consequence of being thrown from a gig. The sight of the cottage instantly recalled the accident, and the gentleman who was the subject of it; and, at the same instant, the impression that the lady, whom I had passed in the manner now mentioned, was his wife. In this case no recollection was excited by the sight of the lady, even

after repeated and anxious attempts; and I believe I should not have recognised the patient himself, had he been along with her; whereas the whole was recalled in an instant by the sight of the cottage. Similar illustrations must have occurred to every one. We meet a person in the street, who stops and speaks to us; but we cannot recognise him. We are unwilling to tell him so, and walk along with him conversing on various topics; at length, he makes an allusion to some person or some circumstance, by means of which, we instantly recollect who he is, and where we met with him. On the same principle, when we are endeavouring to remind a person of a transaction which he has forgotten, and which we are anxious to call to his recollection, we mention various circumstances connected with it, until at length we mention one which, by association, instantly brings the whole distinctly before him. There are even facts which seem to show, that the impression recalled by local association may affect the bodily organs. Van Swieten relates of himself, that he was passing a spot, where the dead body of a dog burst and produced such a stench as made him vomit; and that, happening to pass the same spot some years after, he was affected by sickness and vomiting from the recollection.

Finally, to the influence of local association we are to refer the impressions produced by the monuments of the illustrious dead; the trophies of other

times; the remains of Greece and Rome; or by the visitation of spots distinguished by illustrious deeds, as Thermopylæ, Bannockburn, or Waterloo. "Far from me, says Dr. Johnson, and from my friends, be such frigid philosophy, as may conduct us, indifferent and unmoved, over any ground which has been dignified by wisdom, bravery, or virtue. That man is little to be envied, whose patriotism would not gain force upon the plains of Marathon, or whose piety would not grow warmer among the ruins of Iona."

III. Arbitrary or Fictitious Association.—This association is generally produced by a voluntary effort of the mind; and the facts associated are not connected by any relation except what arises out of this effort. The process is exemplified in the connexion we establish between something which we wish to remember, and something which we are in no danger of forgetting; as in the common expedients of tying a thread about the finger, or making a knot on the pocket-handkerchief. A Roman, for the same purpose, turned the stone of his ring inwards towards the palm of his hand. There is an analogous expedient which most people probably have employed for enabling them to remember the names of persons. It consists in forming an association between the name to be remembered, and that of some intimate friend, or public character of the same name, which

is familiar to us. The remarkable circumstance in these cases is, that, whatever difficulty a person may have in simply remembering a name, he never forgets who the individual was with whose name he formed the association.

On this principle have been founded various schemes of artificial memory. One of the most ancient consisted in associating the divisions of a discourse to be delivered, with the various apartments of a building; and the leading sentiments with articles of furniture. This is said to have been much practised by the ancient orators, and to have given rise to the phraseology, by which we speak of the divisions of a discourse, as the first *place*, the second *place*, &c. I have repeatedly made experiments on this method, in remembering the discourses of public speakers, and the effect is certainly astonishing; for, though it is many years since the experiments were made, I still find articles of furniture associated in the clearest manner with sentiments delivered by some of the speakers. Other systems of artificial memory are founded upon the same general principle, though the particular applications of it may vary,—and some of them are extremely absurd. One of the last which attracted notice in this country, was that of a German of the name of Feinagle, who delivered lectures on memory, to crowded and fashionable audiences, about the year 1809 or 1810. A leading part of his system was the memory of dates,

and it consisted in changing the figures in the date into the letters of the alphabet corresponding to them in number. These letters were then formed into a word to be in some way associated with the date to be remembered. One example, which I happen to recollect, will be sufficient to illustrate the peculiarity of the system, and at the same time its efficiency for its purpose. Henry IV. king of England was born in the year 1366. This date, changed into letters, gives *mff*, which are very easily formed into the word *muff*. The method is not so obvious of establishing with this a relation to Henry IV. "Henry IV.," says M. Feinagle, "is four hens, and we put them into the muff, one in each corner." No one, certainly, after hearing this, is in any danger of forgetting the date of the birth of Henry IV.; but whether the remembrance is worth such a process, is a separate question.

It is unnecessary to enlarge upon the subject of arbitrary association, as the observation of every one will furnish numerous examples of it. There is one application of the principle, however, which deserves to be referred to in a more particular manner. I allude to the practice of commemorative rites, or periodical observances, for transmitting the remembrance of remarkable events. These are, in their nature, in general, entirely arbitrary; or, if they have any analogy to the events, the relation is only figurative. But the influence of such celebrations is

of the most extensive and most important kind. If the events, particularly, are of a very uncommon character, these rites remove any feeling of uncertainty which attaches to traditional testimony, when it has been transmitted through a long period of time, and consequently, through a great number of individuals. They carry us back, in one unbroken series, to the period of the events themselves, and to the individuals who were witnesses of them.

The most important application of the principle, in the manner now referred to, is in those observances of religion which are intended to commemorate the events connected with the revelation of the Christian faith. The importance of this mode of transmission has not been sufficiently attended to by those, who have urged the insufficiency of human testimony, to establish the truth of events which are at variance with the common course of nature. We have formerly alluded to one part of this sophism, and have stated the grounds on which we contend, that no objection to the credibility of these events can be founded upon our observation of what we call the course of nature. We have admitted, that a much higher species of evidence is required for them than would be required for events which correspond with our previous observation ; and this high and peculiar evidence is confirmed in a striking manner by the periodical rites now referred to. By means of these we are freed entirely from every impression of the

fallibility of testimony, and the possibility of the statements having been fabricated; as we are conducted in one uninterrupted series, to the period when the events took place, and to the individuals who witnessed them. This will appear, if we state in a few words a hypothetical case. Let us conceive a person attempting to impose upon the world, by an account of some wonderful or miraculous event, which he alleges occurred 500 years ago. He, of course, exerts every possible ingenuity in fabricating documents, and framing the appearance of a chain of testimony in support of his statement. It is quite possible that he might thus deceive a considerable number of credulous persons; and that others, who did not believe his statement, might yet find difficulty in proving its fallacy. But, if the report were farther to bear, that, ever since the occurrence of the alleged event, it had been regularly and specially celebrated by a certain periodical observance, it is clear that this would bring the statement to the test of a fact open to examination, and that the fallacy of the whole would be instantly detected.

On these principles it must appear, that the statements of the sacred writings, respecting miraculous events which are said to have occurred upwards of 1800 years ago, could not have been fabricated at any intermediate era during that period. It is unnecessary to state, how much more improbable it is, that they could have been fabricated at the very time

and place in which they are said to have occurred, and in the midst of thousands who are said to have witnessed them, many of whom were deeply interested in detecting their fallacy. This part of the question is not connected with our present inquiry, but it is impossible to dismiss the subject without one reflection;—that if we are to proceed upon the principle of probabilities, we must balance fairly the probabilities of fabrication. If we do so, we hesitate not to assert, that the probability of the world being imposed upon, under all the circumstances now alluded to, is more at variance with our firm and unalterable experience, than all that we are called upon to believe.

It does not appear necessary to say much of that modification of memory which is called CONCEPTION. It is the recalling of a perception. If, for example, we have passed a person in the street, whose face we think we have seen, but without being able to recognise him, we can recall the impression of his countenance, and endeavour to recollect who he is. By a higher exercise of this faculty, a painter can draw from conception a landscape or a building, long after he has visited them, and even the portrait of a friend who is dead or absent, and whom he has not seen for

a considerable time. By another modification of this power, we can embody into a conception a scene, a figure, or a transaction, which has been described to us by another. The vividness of our conception, in such cases, does not depend upon the accuracy or even the truth of the description, but upon the degree of liveliness with which it is given, or the intensity with which our attention is directed to it. Thus, it has been remarked, that we have a more clear conception of Don Quixote, or Sancho, than of any characters in real history, unless they have been made familiar to us by paintings. The business of the novelist being to create his hero, he gives a more full and graphic delineation of him than the authentic historian finds it necessary to do: hence, the former begins his narrative by an impression made upon our conception; the latter disregards this, and proceeds at once to the facts which he has to address to our attention and memory.

Conception, properly so called, or the recalling of a perception, does not appear to be necessarily connected with the impression of past time, but rather to be at first accompanied by a feeling of the present existence of the object. Connecting the impression with past time seems to be a distinct act of the mind; and the conception may be so strong as, for the moment, almost to exclude all idea of the past. That degree of conception by which a painter can take the

likeness of a friend who has been long dead, or delineate a scene visited at a remote period, must amount to something of this nature. In the active and healthy state of the other faculties of the mind, this impression is but momentary, being almost instantly corrected by impressions received from the external world. We shall afterwards have occasion to refer to a remarkable state of mind in which it is not thus corrected, but in which objects, which exist only in conception, are believed to have a real and present existence. On this condition depend many of the peculiarities of dreaming, insanity, and spectral illusions.

Different individuals possess the faculty of conception in different degrees; and, connected with the degree of it, there is generally a corresponding talent for lively description. The faculty itself, or the formation of the conception, probably follows nearly the same laws with memory, and depends, in a great measure, upon the degree of attention which was originally directed to the objects. This, again, is influenced, as in the case of memory, partly by the general activity of mind of the individual, and partly by his particular habits and pursuits.—Thus, as formerly remarked, in describing the features of a country which they have passed over, one person will give a clear and lively description of its general characters, so as to place it, as it were, before you; a second will describe chiefly its pastures and produce;

a third may include both; while a fourth may not be able to give an intelligible account of any one feature of the scene.

There are particular situations in which conception is apt to be most intensely brought into exercise, especially those of seclusion, and the absence of all external impressions. A beautiful example of this occurs in the life of Niebuhr, the celebrated Danish traveller. When old, blind, and so infirm that he was able only to be carried from his bed to his chair, he used to describe to his friends the scenes which he had visited in his early days, with wonderful minuteness and vivacity. When they expressed their astonishment, he told them, "that as he lay in bed, all visible objects shut out, the pictures of what he had seen in the east continually floated before his mind's eye, so that it was no wonder he could speak of them as if he had seen them yesterday. With like vividness, the deep intense sky of Asia, with its brilliant and twinkling host of stars, which he had so often gazed at by night, or its lofty vault of blue by day, was reflected, in the hours of stillness and darkness, on his inmost soul." This may, perhaps, be considered as an example of what we may call the highest degree of healthy conception. Something a little beyond this leads to that state on which depends the theory of apparitions or spectral illusions.

In concluding this brief allusion to the subject of conception, I shall only add the following example

of another application of this mental process. In the church of St. Peter, at Cologne, the altar-piece is a large and valuable picture by Rubens, representing the martyrdom of the apostle. This picture having been carried away by the French in 1805, to the great regret of the inhabitants, a painter of that city undertook to make a copy of it from recollection; and succeeded in doing so in such a manner, that the most delicate tints of the original are preserved with the most minute accuracy. The original painting has now been restored, but the copy is preserved along with it; and, even when they are rigidly compared, it is scarcely possible to distinguish the one from the other. I am not aware that this remarkable anecdote has been recorded by any traveller; I am indebted for it to my friend the late Dr. Duncan, of the university of Edinburgh, who heard it on the spot in a visit to the continent, and saw both the pictures.

OF THE CULTURE AND IMPROVEMENT OF ATTENTION AND MEMORY.

The facts which have been briefly referred to, in regard to the phenomena of memory, lead to some remarks of a practical nature. These relate to the improvement of attention and memory in persons of

adult years; and the cultivation of these powers in the education of the young.

The rules from which benefit is to be derived for the improvement of memory, in persons of adult years, may be chiefly referred to the following heads.

I. The cultivation of habits of attention, or of intense application of the mind to whatever is at the time its more immediate object of pursuit.

II. Habits of correct association. These consist in the constant practice of tracing the relation between new facts and others with which we are previously acquainted; and of referring facts to principles which they are calculated to illustrate, or to opinions which they tend to confirm, modify, or overturn. This is the operation of what we call a reflecting mind; and that information, which is thus fully contemplated and associated, is not likely to be forgotten.

III. Intimately connected with both the former rules, is the cultivation of that active inquiring state of mind, which is always on the watch for knowledge, from every source that comes within its reach, either in reading, conversation, or observation. Such a mind is ever ready to refer newly-acquired knowledge to its proper place. It is thus easily retained, and made to yield those conclusions which are legitimately deduced from it.

IV. Method,—that is, the pursuit of particular subjects, upon a regular and connected plan.

All these principles are opposed to that listless inactive state of mind, which is occupied with trifles, or with its own waking dreams; or which seeks only amusement in desultory pursuits which pass away and are forgotten. They are likewise opposed to habits of irregular and desultory application, which even intellectual persons are apt to fall into, by means of which the mind loses the train of investigation, or of argument, in which it had made some progress, and may not be able to recover it in a satisfactory manner. Nothing, indeed, appears to contribute more to progress in any intellectual pursuit, than the practice of keeping one subject habitually before the mind, and of daily contributing something towards the prosecution of it.

V. Attention and memory are greatly promoted by writing on a subject, especially if it be done in a distinct and systematic manner;—also, by conversing on the subject,—and by instructing others in it. These exercises, indeed, may perhaps be considered as aids rather to attention, or a clear comprehension of the subject, than to memory. For in regard to memory, it is remarkable how much its power is increased in many instances, by that kind of exercise

by which it is alone trusted to, without any aid from writing. I have known medical men, for example, who had to recollect numerous appointments, do so with perfect accuracy by trusting to memory, to which they had habituated themselves, but blunder continually when they kept a written memorandum. The mental power, which is in some cases acquired by constant and intense exercise, is indeed astonishing. Bloomfield the poet relates of himself, that nearly one-half of his poem, the Farmer's Boy, was composed, revised and corrected, without writing a word of it, while he was at work with other shoemakers in a garret.

Similar rules apply to the cultivation of these powers in young persons. They may be chiefly referred to the following heads.

I. Exciting constant attention and constant interest. For this purpose it is of essential importance, that whatever reading is presented to children, shall be of a kind which they understand, and in which they can feel interest and pleasure. This will be greatly promoted by directing their attention to the meaning of words, and explaining them by familiar illustrations. The practice of setting tasks as punishments cannot be alluded to in terms adequate to its extreme absurdity. On this ground also, it must be

considered as a great error in education to make children attempt too much, that is, more than they can do with close attention. When a sense of weariness or mental languor takes place, what follows is not merely loss of time, but an important injury done to the mental constitution; and it appears to be of the utmost consequence, that the time of children should be as much as possible divided between intense attention and active recreation. By a shorter time occupied in this manner, not only is more progress made than by a longer, with listless and imperfect application; but an important part of mental discipline is secured, which by the other method is entirely neglected. Similar observations, indeed, apply to persons at every period of life; and we are fully persuaded that progress in any intellectual pursuit does not depend so much upon protracted laborious study, as on the practice of keeping the subject habitually before the mind, and on the intensity of mental application.

II. Cultivating habits of association, by pointing out to children the relation of facts to each other, and the manner in which they illustrate one another, or lead to some general conclusion. By directing them in this manner, from any particular fact, to recollect similar or analogous facts which had formerly passed before them, they will be trained at once to attention, memory, and reflection.

III. Cultivating that general activity of mind, which seeks for information on every subject that comes in its way. The most common and trivial occurrences may thus be made the source of mental improvement; as the habits of animals; the natural history of the articles that are constantly before us, in clothes, food, furniture; articles of manufacture from a watch to a pin; the action of the mechanic powers, as illustrated by various contrivances in constant use; the structure of a leaf, a flower, a tree. To those farther advanced, a constant source of interest may be found in history, geography, and memoirs of eminent individuals; and in the leading principles of natural history, natural philosophy, and chemistry. Every new subject of thought, which is thus presented to the mind, is both valuable in itself, by the powers which it calls into action, and by proving a nucleus to which new facts may be afterwards associated.

IV. Memory and attention are greatly promoted in young persons by writing; provided it be done, not merely in the form of extracts from books, but in their own words; in history, for example, in the form of chronological tables; and on other subjects in clear and distinct abstracts, neatly and methodically written.

V. These exercises of mind are greatly promoted in the young by verbal communication. Hence the

importance of frequent examination. The teacher is thereby enabled, not only to ascertain their progress, but to explain what they do not understand; to impress upon them important points to which they may not have sufficiently attended; to excite attention, inquiry, and interest; and so to cultivate the habits of association and reflection. These, in fact, ought to be the objects to be kept in view in all such exercises, as of much greater moment than the mere putting of questions. On the same principle, a most useful exercise for young persons is, instructing others still younger, on subjects which they have themselves recently acquired.

VI. In the cultivation of the mental powers in the young, a point of essential importance is the selection of proper and worthy objects of acquirement. In the general conduct of education in this respect, the chief error appears, in general, to have been, devoting too much time and attention, in females, to superficial accomplishments, and in males, to mere acquirement in languages and mathematics: and the great object to be kept in view, from the very earliest period, is, the paramount importance of the actual knowledge of things on subjects of real utility; the actual cultivation of habits of observation, inquiry, association, and induction; and, as the foundation of the whole, the habit of steady and continued attention. The cultivation of these mental habits is of greater value by far

than any one acquirement whatever, for they are the basis of all future improvement, and are calculated to give a tone to the whole character.

In this brief outline I have said nothing on the subject of religious instruction; for the same rules apply to it as to branches of inferior importance, in as far as it is to be considered as engaging the intellectual powers. The chief error here appears to be the practice of trusting too much to the mere repetition of tasks or catechisms, without that kind of direct personal instruction which is calculated to interest the attention, to fix the truths upon the understanding, and to cultivate the habits of association and reflection. A leading branch of this subject, the culture of the moral feelings, does not belong to our present inquiry; but it is impossible to mention it without alluding to its intense interest, even in a philosophical point of view. One of the most striking phenomena, certainly, in the science of the human mind, is the high degree of culture of which the moral powers are susceptible, even in the infant mind, long before the powers of intellect are developed for the investigation of truth.

In reference to the whole science of education, nothing is of greater importance than the principle of association, which, we have formerly seen, exerts a most extensive influence, not in the remembrance of facts alone, but in perpetuating and recalling men-

tal emotions. We take a very limited view, indeed, of this great subject, if we confine education entirely or chiefly to the acquisition of knowledge, or even to the culture of the intellectual powers. That system is deficient in its most essential part, which does not carry on, along with these, a careful and habitual culture and regulation of the passions and emotions of the young,—their attachments and antipathies,—their hopes and fears,—their joys and sorrows;—the cultivation of the social and benevolent affections;—the habit of repressing selfishness and bearing inconveniences and disappointments without murmuring;—a disposition to candour and ingenuousness, and a sacred regard to truth. Their future character, as social and moral beings, will be greatly influenced by the manner in which they are taught from an early period to regulate their emotions, by directing them to adequate and worthy objects,—and controlling them by the great principles of wisdom and virtue. In this important process the principle of association exerts a most extensive influence. The stern lessons of morality, and even the sublime truths of religion, may be rigidly impressed upon the minds of the young, and may, in after-life, recur from time to time as a mere matter of remembrance; but many must have experienced how different is the impression, when they recur in close association with a father's affection and a mother's tenderness,—with the lively recollection of a home, where the kindest

sympathies of the human heart shed around the domestic circle all that is lovely in life, while a mild and consistent piety habitually pointed the way to a life which is to come.

OF THE INFLUENCE OF DISEASE UPON ATTENTION AND MEMORY.

The preceding imperfect outline, of the subject of memory, naturally leads us briefly to investigate the manner in which this function is impaired in connexion with bodily disease. This takes place chiefly from injuries of the head, affections of the brain, fever, and diseases of extreme debility. Similar effects arise from intemperance and other habits of dissipation. Our present purpose, however, is, not to investigate the peculiar effects of these various causes, but to endeavour to trace the manner in which attention and memory, and we may include perception, are affected by any or all of them.

The first mental function which is impaired by bodily disease is usually the power of attention;—this we see illustrated in all febrile affections. The patient, in the early or milder stages, is incapable of fixing his mind upon any thing that requires much attention, of following out an argument, or of

transacting business which calls for much thought or consideration. He is acute and intelligent as to all common occurrences, and shows no want of recollection, or of the power of reasoning when his attention is excited; but he feels it an exertion that is painful to him. In a higher degree of this condition, he is still intelligent as to what is said or done at the time, or in recognising persons; but in a short time forgets every thing in regard to the person or the occurrence. He is incapable of that degree of attention which is necessary for memory, though the powers of perception are entire. In the next stage, he becomes incapable of receiving the full impression from external things; and, in consequence of this, he mistakes the objects of his own thoughts for realities. This is delirium, and there are various degrees of it. In some cases, the attention of the patient can be roused for a time, and directed to the true relations of external things, though he relapses into his delirious impressions when he is left undisturbed; in others, the false impression is constant, and cannot be corrected by any effort which is made to direct the attention; and, in a third modification of this remarkable condition, he mixes up his hallucinations with external impressions in a most singular manner. He is still capable, however, of describing his impressions, that is, of talking so as to be understood, though what he speaks of relates only to his erroneous conceptions, or mere bodily feelings.

In the next stage, he either does not attempt to express himself at all, or is entirely unintelligible. He is now cut off from communication with external things, and with other sentient beings; and the highest degree of this is what we call coma, or stupor, which resembles profound sleep.

This description refers chiefly to the gradations in the state of the mental functions which we observe in continued fever. It is particularly interesting to trace them in this disease, because we see the various grades passing into one another, and thus showing, in a connected series, the leading peculiarities, which, in other affections, we have to contemplate separately. These peculiarities may be chiefly referred to the following heads.

I. A state in which the attention cannot be steadily directed to a long and connected train of thought, or to any thing requiring a continued effort of mind. This takes place, as already stated, in the earlier stages of all febrile diseases. It likewise occurs in connexion with the debility which succeeds acute diseases; in persons broken down by intemperance; and in the first approaches of old age. It is also often observed in a remarkable degree in connexion with a disordered state of the stomach.

II. A state in which the impression made by external things is not sufficient to produce remem-

brance, though there appears to be, at the time, a perfect perception. A person so affected understands what is said to him, and answers correctly, but very soon forgets what has passed; he knows a friend, and is happy to see him, but in a short time forgets the occurrence. This is met with in a more advanced state of febrile diseases, in the higher degrees of the condition which results from habitual intemperance, and in the more advanced periods of age. It also occurs in diseases of the brain, and in cases of injuries of the head. A lady, whom I attended some time ago, on account of an injury produced by a fall from a horse, lay, for the first week, in a state of perfect stupor; she then gradually revived, so as to be sensible to external impressions, and after some time to recognise her friends. But afterwards, when she was entirely recovered, she had no recollection of this period of her convalescence, or of having seen various friends who then visited her, though, at the time, she recognised them, conversed with them sensibly, and was very happy to see them.

III. The third condition is that in which external impressions are either not perceived at all, or are perceived in a manner which cannot convey any distinct notion of their relations to the mind. On this account the conceptions or trains of ideas existing in the mind itself are believed to be realities. This remarkable condition belongs properly to another part

of our subject. It occurs in various forms of delirium, and constitutes the peculiar characters of insanity and dreaming. The ideas or conceptions which occupy the mind in this condition are various. They may be trains of thought excited by some passing event, or some bodily sensation; and frequently the patient repeats something which is said in his hearing, and then branches off into some other train to which that has given rise. In other cases, the impression is one which has been brought up by some old associations, even relating to things which the person when in health had not recollected.

It is rarely that we have an opportunity of knowing precisely the state of the mental operations during fever, and I therefore find considerable interest in a statement which I have received from a gentleman, whom I attended along with Dr. Andrew Combe. His case was one of protracted fever, which went on for about six weeks; and it came on after much excitement and intense application of mind, in bringing to perfection a piece of complicated machinery. During the first fortnight the febrile symptoms were mild, but with much complaint of headach; he lay like a person unwilling to be disturbed, and was little inclined to speak, but was quite sensible, and answered correctly whenever he was spoken to. This was succeeded by a period of restlessness, in which he was more inclined to talk, and often wished to get out of bed; he now began to have false

perceptions, and paroxysms of delirium, with considerable excitement, and these continued during the remainder of the attack,—but with intervals of several hours, in which he was perfectly sensible. During these he was able to converse correctly for some time; but it was found, that conversation, continued beyond a certain time, uniformly brought back the delirium. The account which he gives of his mental feelings during these two different periods of his illness, is curious and interesting. Of the first, namely, that during which he was quite sensible, he says he can give no intelligible account,—it was deep, dark, hideous, but indefinite, and he looks back upon it with horror. He has no recollection of suffering any bodily pain, but seemed to suffer the most excruciating mental agony, which he cannot describe. He remembers, in reference to this period, no persons, no passing of time, no distinction of night and day, no sleeping or waking, hearing, seeing, smelling, or tasting any thing; he has only the impression of a long, dull, horrible, but indescribable dream; and his own conviction is, that he was, at this time, altogether insensible to external objects. "A state of great mental activity followed,—great, but not unpleasant excitement. All sorts of wild, but unconnected, fantasies successively occupied my mind. Sometimes my thoughts ran upon things which had formerly interested me; and at others, on things of which I had never dreamt. The distinguishing cha-

racter of this period was, that thoughts were realities, as is the case in dreaming. Scenes and speculations of all kinds passed in rapid succession through my mind, but they had all the force and vigour of actual existence. I did not think of doing a thing, but did it. Persons, periods, places, and things, the most incompatible with each other, were all brought together without a shadow of difficulty; and when together, without exciting the idea of their own inconsistency. For some of these notions I can easily account, as being consistent with the general current of my thoughts; for others I can conceive no imaginable cause; but my recollection of many of the scenes is even now more vivid than of many things that have really happened to me." He then describes a variety of the scenes which passed before him, in a manner strictly analogous to dreaming. The first was a fair in a village in Derbyshire, where he had resided when a boy at school; and the Duke of Wellington was there, and appeared in the act of opening the gate of the church-yard. This was succeeded by a shooting excursion; this by extensive transactions with soldiers, in which he was concerned in exertions for improving their condition. Then he was engaged in a duel; and finally, he was concerned in an extensive brewery, of which he was appointed manager; and so strong was this impression, that the belief of its reality was not removed after he was far advanced in convalescence. One point is deserving

of notice, namely, that he seemed to have lost all idea of personal identity. Thus, in the course of his illness, he had a sore ear, which appeared to produce considerable uneasiness; but he had no idea that it was his own ear,—he thought it belonged to a soldier boy.

IV. A remarkable circumstance in many of the cases referred to under the preceding heads is, that, along with a greater or less degree of incapacity of attending to present objects, there is often a wonderful activity of mind in regard to old impressions, and even the renewal of recollections which had been entirely lost. Of this kind there are various remarkable examples on record, especially in regard to the memory of languages. A man, mentioned by Mr. Abernethy, had been born in France, but had spent the greater part of his life in England, and, for many years, had entirely lost the habit of speaking French. But when under the care of Mr. Abernethy, on account of the effects of an injury of the head, he always spoke French. A similar case occurred in St. Thomas's Hospital, of a man who was in a state of stupor in consequence of an injury of the head. On his partial recovery he spoke a language which nobody in the hospital understood, but which was soon ascertained to be Welsh. It was then discovered that he had been thirty years absent from Wales, and, before the accident, had entirely

forgotten his native language. On his perfect recovery, he completely forgot his Welsh again, and recovered the English language. A lady, mentioned by Dr. Prichard, when in a state of delirium, spoke a language which nobody about her understood; but which also was discovered to be Welsh. None of her friends could form any conception of the manner in which she had become acquainted with that language; but after much inquiry, it was discovered, that in her childhood she had a nurse, a native of a district on the coast of Brittany, the dialect of which is closely analogous to the Welsh. The lady had at that time learnt a good deal of this dialect, but had entirely forgotten it for many years before this attack of fever. The case has also been communicated to me of a lady who was a native of Germany, but married to an English gentleman, and for a considerable time accustomed to speak the English language. During an illness, of the nature of which I am not informed, she always spoke German, and could not make herself understood by her English attendants, except when her husband acted as interpreter. A woman who was a native of the Highlands, but accustomed to speak English, was under the care of Dr. Mackintosh of this city, on account of an attack of apoplexy. She was so far recovered as to look around her with an appearance of intelligence, but Dr. M. could not make her comprehend any thing he said to her, or answer the most simple

question. He then desired one of her friends to address her in Gaelic, when she immediately answered with readiness and fluency.—An Italian gentleman, mentioned by Dr. Rush, who died of the yellow fever in New York, in the beginning of his illness spoke English, in the middle of it French, but on the day of his death he spoke only Italian. A Lutheran clergyman of Philadelphia informed Dr. Rush, that Germans and Swedes, of whom he had a considerable number in his congregation, when near death always prayed in their native languages, though some of them, he was confident, had not spoken these languages for fifty or sixty years.

A case has been related to me of a boy, who, at the age of four, received a fracture of the skull, for which he underwent the operation of trepan. He was at the time in a state of perfect stupor, and, after his recovery, retained no recollection either of the accident or the operation. At the age of fifteen, during the delirium of a fever, he gave his mother an account of the operation, and the persons who were present at it, with a correct description of their dress, and other minute particulars. He had never been observed to allude to it before, and no means were known by which he could have acquired the circumstances which he mentioned. An eminent medical friend informs me, that, during fever, without any delirium, he, on one occasion, repeated long passages from Homer, which he could not do when in health;

and another friend has mentioned to me, that, in a similar situation, there were represented to his mind, in a most vivid manner, the circumstances of a journey in the Highlands, which he had performed long before, including many minute particulars which he had entirely forgotten. A gentleman who was under the care of Dr. Johnston of Kirkaldy, when in a state of slight delirium, connected with erysipelas of of the head, sung, with great precision, some Gaelic songs. In health he had no kind of turn for music; and though in his youth he had some knowledge of the Gaelic language, he had been for many years entirely unaccustomed to it, and his knowledge of the language was supposed to be nearly or altogether lost. An ignorant servant girl, mentioned by Coleridge, during the delirium of a fever, repeated passages from theological works in Latin, Greek, and Rabbinical Hebrew, which, being taken down and traced to the works from which they were derived, were found to be repeated with perfect accuracy. It turned out that she had been servant to a clergyman, a man of much learning and peculiar habits, who was in the practice of walking backwards and forwards, along a passage in his house which led to the kitchen, and there reading aloud his favourite authors.

In regard to the memory of languages as influenced by affections of the brain, a condition occurs, the reverse of that now mentioned, and presenting

some singular phenomena; the cause of the difference is entirely beyond our researches. The late Dr. Gregory was accustomed to mention in his lectures the case of a clergyman, who, while labouring under a disease of the brain, spoke nothing but Hebrew, which was ascertained to be the last language that he had acquired. An English lady, mentioned by Dr. Prichard, in recovering from an apoplectic attack, always spoke to her attendants in French, and had actually lost the knowledge of the English language. This continued about a month.

V. The last condition is the state of stupor or coma, in which the mind is entirely cut off from intercourse with the external world. This occurs in the worst states of fever,—in various diseases of the brain and injuries of the head; and the same condition takes place, from a very different cause, in the state of fainting. In such cases, there is seldom any recollection of mental impressions; yet there are facts which tend to show, that the patient is not in such a state of total insensibility to external things as his appearance would indicate. A gentleman, whom I attended in a state of perfect apoplexy, from which he did not recover, was frequently observed to adjust his nightcap with the utmost care, when it got into an uncomfortable state; first pulling it down over his eyes, and then turning up the front of it in the most exact manner. Another, whom I saw

lately in a state of profound apoplexy, from which he recovered, had a perfect recollection of what took place during the attack, and mentioned many things which had been said in his hearing, when he was supposed to be in a state of perfect unconsciousness. A lady, on recovering from a similar state, said she had been asleep and dreaming, and mentioned what she had dreamt about. Facts are wanting on this curious subject; but there can be little doubt, that many of the stories related of things seen by persons in a state of trance, are referable to this head, and that their visions consisted of the conceptions of the mind itself, believed for the time to be real, in a manner analogous to dreaming. That such impressions should not be more frequently remembered, in the ordinary cases of stupor, probably arises from the higher degree and greater permanency of the affection than that which occurs in sleep. For we have reason to believe, that dreams which are remembered occur only in imperfect sleep, and that after very profound sleep we do not remember any mental impressions, though we have satisfactory proof that they exist. Thus, a person will talk in his sleep so as to be distinctly understood by another, but without having the least recollection of the mental impression which led to what he said.

In the preceding observations, we have referred chiefly to the temporary influence of disease, in im-

pairing or suspending the powers of attention and memory in regard to recent impressions. But there is a part of the subject quite distinct from this, namely, the effect of certain diseases in obliterating impressions formerly received and long retained. The higher degrees of this condition amount to that state which we call idiotism, and this we find supervening both upon affections of the brain and protracted febrile diseases. The condition so produced is sometimes permanent, but frequently is recovered from; and recovery takes place in some cases gradually, in others very suddenly. A man mentioned by Willis, on recovering from a putrid fever, was found to have so entirely lost his mental faculties, that he knew nobody, remembered nothing, and understood nothing: "vix supra brutum saperet." He continued in this state for two months, and then gradually recovered. Some years ago I attended a young man, who, on recovering from a tedious fever, was found to be in a state bordering upon idiotism; and this continued even after his bodily health was entirely restored. In this state he was taken to the country, where he gradually recovered after several months. A gentleman mentioned by Wepfer, on coming out of an apoplectic attack, was found to know nobody, and remember nothing. After several weeks, he began to know his friends, to remember words, to repeat the Lord's prayer, and to read a few words of Latin, rather than German, which was his

own language. When urged to read more than a few words at a time, he said that he formerly understood these things, but now did not. After some time, he began to pay more attention to what was passing around him; but, while thus making slight and gradual progress, he was, after a few months, suddenly cut off by an attack of apoplexy.

The sudden recoveries from this condition of the mental powers are still more remarkable. Dr. Prichard, on the authority of the late Dr. Rush of Philadelphia, mentions an American student, a person of considerable attainments, who, on recovering from a fever, was found to have lost all his acquired knowledge. When his health was restored, he began to apply to the Latin grammar; had passed through the elementary parts and was beginning to construe, when, one day, in making a strong effort to recollect a part of his lesson, the whole of his lost impressions suddenly returned to his mind, and he found himself at once in possession of all his former acquirements.

In slighter injuries of the head, accompanied by loss of recollection, we observe the circumstances gradually recalled in a very singular manner. Some years ago I saw a boy who had fallen from a wall, and struck his head against a stone which lay at the foot of it. He was carried home in a state of insensibility, from which he soon recovered, but without any recollection of the accident. He felt that his head was hurt, but he had no idea how he had re-

ceived the injury. After a short time he recollected that he had struck his head against a stone, but had no recollection how he had come to do so. After another interval, he recollected that he had been on the top of a wall, and had fallen from it and struck against the stone, but could not remember where the wall was. After some time longer, he recovered the recollection of all the circumstances. Dr. Prichard mentions a gentleman, who suffered a severe injury by a fall from his horse, and who, on his recovery, had no recollection of any thing relating to the accident, or for some time before it. A considerable time elapsed before his recollection of it began to return, and it was only as he repeatedly rode over the country where the accident had happened, that the sight of the various objects gradually recalled the circumstances of the journey in which it occurred, and of the accident itself. On the other hand, singular examples occur, on recovering from comatose affections, of the sudden revival of subjects of thought which had been in the mind at the time of the attack. A lady, whose case was lately communicated to me, was seized with an apoplectic attack while engaged at cards. The seizure took place on a Thursday evening,—she lay in a state of stupor on Friday and Saturday, and recovered her consciousness rather suddenly on Sunday. The first words she then uttered were by asking, "what is trump."

A still more remarkable phenomenon, connected

with cases of this kind, occurs in some instances in which there is perfect intelligence in regard to recent circumstances, but an obliteration of former impressions. Of this I have received the following striking example from an eminent medical friend. A respectable surgeon was thrown from his horse while riding in the country, and was carried into an adjoining house in a state of insensibility. From this he very soon recovered, described the accident distinctly, and gave minute directions in regard to his own treatment. In particular, he requested that he might be immediately bled; the bleeding was repeated, at his own desire, after two hours; and he conversed correctly regarding his feelings and the state of his pulse with the medical man who visited him. In the evening he was so much recovered as to be able to be removed to his own house, and a medical friend accompanied him in the carriage. As they drew near home, the latter made some observation, respecting precautions calculated to prevent unnecessary alarm to the wife and family of the patient, when, to his astonishment, he discovered that his friend had lost all idea of having either a wife or children. This condition continued during the following day, and it was only on the third day, and after farther bleeding, that the circumstances of his past life began to recur to his mind. On the other hand, remarkable instances occur of the permanence of impressions made upon the mind previously to

such injuries, though the mental faculties are entirely obscured as to all subsequent impressions. An affecting example is mentioned by Dr. Conolly;—a young clergyman, when on the point of being married, suffered an injury of the head by which his understanding was entirely and permanently deranged. He lived in this condition till the age of eighty; and to the last talked of nothing but his approaching wedding, and expressed impatience for the arrival of the happy day.

It is chiefly in connexion with attacks of an apoplectic nature, that we meet with singular examples of loss of memory on particular topics, or extending only to a particular period. One of the most common is loss of the memory of words, or of names, while the patient retains a correct idea of things and persons. The late Dr. Gregory used to mention a lady, who, after an apoplectic attack, recovered correctly her ideas of things, but could not name them. In giving directions respecting family matters, she was quite distinct as to what she wished to be done, but could make herself understood only by going through the house, and pointing to the various articles. A gentleman whom I attended some years ago, after recovering from an apoplectic attack, knew his friends perfectly, but could not name them. Walking one day in the street, he met a gentleman to whom he was very anxious to communicate something respecting a mutual friend. After various in-

effectual attempts to make him understand whom he meant, he at last seized him by the arm and dragged him through several streets to the house of the gentleman of whom he was speaking, and pointed to the name-plate on the door.

A singular modification of this condition has been related to me. The gentleman to whom it referred, could not be made to understand the name of an object if it was spoken to him, but understood it perfectly when it was written. His mental faculties were so entire, that he was engaged in most extensive agricultural concerns, and he managed them with perfect correctness by means of a remarkable contrivance. He kept before him, in the room where he transacted business, a list of the words which were most apt to occur in his intercourse with his workmen. When one of these wished to communicate with him on any subject, he first heard what the workman had to say, but without understanding him farther than simply to catch the words. He then turned to the words in his written list, and whenever they met his eye, he understood them perfectly. These particulars I had from his son, a gentleman of high intelligence. Another frequent modification consists in putting one name for another, but always using the words in the same sense. An example of this also occurred in the gentleman last mentioned. He uniformly called his snuff-box a hogshead, and the association which led to this appeared to be ob-

vious. In the early part of his life he had been in Virginia, and connected with the trade in tobacco; so that the transition from snuff to tobacco, and from tobacco to a hogshead, seemed to be natural. Another gentleman affected in this manner, when he wanted coals put upon his fire, always called for paper, and when he wanted paper called for coals; and these words he always used in the same manner. In other cases, the patient seems to invent names, using words which to a stranger are quite unintelligible; but he always uses them in the same sense, and his immediate attendants come to understand what he means by them.

A gentleman upwards of eighty years of age, whom I attended some time ago on account of an attack in his head, lost almost entirely the use of the English language, and expressed himself in a dialect which seemed to be a mixture of French, Italian, Spanish, German, and Turkish, with many words which were entirely without meaning. He had been acquainted with these languages in the early part of his life, when in diplomatic situations in foreign countries, but had lived in retirement in Scotland for more than thirty years. He seemed to be quite distinct in his ideas of things, as appeared from his going to shops and making purchases in the most correct manner, but always by searching about till he found the article he wanted; and when driving out in his carriage, though he could not make him-

self intelligible to his coachman in words, he was quite distinct in directing him by signs where he wished to be driven. The language which he chiefly employed appeared to be Spanish, and with a Portuguese gentleman who paid him a visit, he conversed for some time very correctly in Spanish, introducing, however, occasionally words from other languages. For a long time after the attack, he rarely spoke the shortest sentence in English, though he frequently used single words, but in a manner in which no meaning could be attached to them. Having been afterwards considerably burnt about the head, by setting fire to the curtains of his bed, he was observed to use more English words for some time, and this being followed by a course of blistering, he continued to speak more in English, but only occasionally and in very short sentences. These were sometimes correctly expressed, and sometimes with that misapplication of words which is usual in such affections; thus, having at one time occasion to inspect a house which was of very small dimensions, but fitted up with great neatness, he said, "it is very neat, but a very little child." Latterly, it has been observed, that he speaks more English than usual when he begins a conversation with a person whom he has not seen for some time, but that he soon relapses into his unintelligible language; and the same effect is produced by any communication that excites either surprise or distress.

Another remarkable modification of this condition of the mental powers, is found in those cases in which there is loss of the recollection of a particular period. A clergyman mentioned by Dr. Beattie, on recovering from an apoplectic attack, was found to have lost the recollection of exactly four years; every thing that occurred before that period he remembered perfectly. He gradually recovered, partly by a spontaneous revival of his memory, and partly by acquiring a knowledge of the leading events of the period. A young lady who was present at a late catastrophe in Scotland, in which many people lost their lives by the fall of the gallery of a church, escaped without any injury, but with the complete loss of the recollection of any of the circumstances; and this extended, not only to the accident, but to every thing that had occurred to her for a certain time before going to church. A lady, whom I attended some years ago in a protracted illness, in which her memory became much impaired, lost the recollection of a period of about ten or twelve years, but spoke with perfect consistency of things as they stood before that time.

As far as I have been able to trace it, the principle in such cases seems to be, that, when the memory is impaired to a certain degree, the loss of it extends backwards to some event or some period, by which a particularly deep impression had been made upon the mind. In the lady last mentioned, for instance, the period of which she lost the recollection was that

during which she had resided in Edinburgh, and it extended back to her removal from another city in which she had lived for many years. During her residence in the latter, she had become the mother of a numerous family, and other events had occurred likely to make a deep impression on her mind. The period of her residence in Edinburgh had been uniform and tranquil, and without any occurrence calculated to excite much attention in a person of rather slender mental endowments. I do not know whether we can give a similar explanation of cases, in which the loss of memory has extended only to particular subjects; namely, by supposing, that these subjects had been more slightly impressed upon the mind, than those which were retained. A gentleman is mentioned by Dr. Beattie, who, after a blow on the head, lost his knowledge of Greek, and did not appear to have lost any thing else.

While we thus review the manner in which the manifestations of mind are affected, in certain cases, by diseases and injuries of the brain, it is necessary that we should refer briefly to the remarkable instances in which the brain has been extensively diseased without the phenomena of mind being impaired in any sensible degree. This holds true both in regard to the destruction of each individual part of the brain, and likewise to the extent to which the cerebral mass may be diseased or destroyed. In another

work, I have mentioned various cases which illustrate this fact in a very striking manner; particularly the case of a lady in whom one half of the brain was reduced to a mass of disease; but who retained all her faculties to the last, except that there was an imperfection of vision,—and had been enjoying herself at a convivial party in the house of a friend, a few hours before her death. A man mentioned by Dr. Ferriar, who died of an affection of the brain, retained all his faculties entire till the very moment of death which was sudden: on examining his head, the whole right hemisphere, that is one half of his brain, was found destroyed by suppuration. In a similar case recorded by Diemerbroek, half a pound of matter was found in the brain; and in one by Dr. Heberden, there was half a pound of water. A man, mentioned by Mr. O'Halloran, suffered such an injury of the head, that a large portion of the bone was removed on the right side; and extensive suppuration having taken place, there was discharged at each dressing, through the opening, an immense quantity of matter mixed with large masses of the substance of the brain. This went on for seventeen days, and it appears that nearly one half of the brain was thrown out mixed with the matter; yet the man retained all his intellectual faculties to the very moment of dissolution; and, through the whole course of the disease, his mind maintained uniform tranquillity. These remarkable histories

might be greatly multiplied if it were required, but at present it seems only necessary to add the very interesting case related by Mr. Marshall. It is that of a man who died with a pound of water in his brain, after having been long in a state of idiocy, but who, a very short time before death, became perfectly rational.

The facts, which have been thus briefly referred to, present a series of phenomena of the most remarkable kind, but on which we cannot speculate in the smallest degree without advancing beyond the sphere of our limited faculties; one thing, however, is certain,—that they give no countenance to the doctrine of materialism, which some have presumptuously deduced from a very partial view of the influence of cerebral disease upon the manifestations of mind. They show us, indeed, in a very striking manner, the mind holding intercourse with the external world, through the medium of the brain and nervous system; and, by certain diseases of these organs, they show this intercourse impaired or suspended; but they show nothing more. In particular, they warrant nothing in any degree analogous to those partial deductions which form the basis of materialism. On the contrary, they show us the brain injured and diseased to an extraordinary extent, without the mental functions being affected in any sensible degree. They show us, farther, the manifestations of

mind obscured for a time, and yet reviving in all their original vigour, almost in the very moment of dissolution. Finally, they exhibit to us the mind, cut off from all intercourse with the external world, recalling its old impressions, even of things long forgotten; and exercising its powers on those which had long ceased to exist, in a manner totally irreconcilable with any idea we can form of a material function.

SECTION II.

ABSTRACTION.

By Abstraction, we separate various facts from each other, and examine them individually. We separate, for example, the qualities of a substance, and contemplate one of them apart from the rest. This act of the mind is employed in two processes of the utmost importance. By the one, we examine a variety of objects, select the properties in which certain numbers of them agree, and thus arrange them into classes, genera, and species. By the other, we take a more comprehensive view of an extensive collection of facts, and select one which is common to the whole. This we call generalizing, or deducing a general fact, or general principle; and the process is

of extensive application in all philosophical inquiries. The particular points to be attended to, in conducting it, will come under view in another part of our subject. The most important is, that the fact, assumed as general, really belongs to all the individual instances, and has not been deduced from the examination of only a part of them.

There have been disputes among writers on the science of mind, whether abstraction is to be considered as a distinct mental operation, or is referable to judgment. But I have already stated that my object in this outline is to avoid all such discussions, and to allude simply to the actual processes of the mind in a practical view. One thing at least is clear, namely, that our abstractions must be corrected by reason, the province of which is to judge whether the process is performed correctly, and on sound principles. This, however, is distinct from the primary act of the mind, to which I now apply the term abstraction, which is simply the power of contemplating one property of a substance apart from its other properties. It thus disjoins things which by nature are intimately united, and which cannot be separated in any other manner. Reason does not appear to be immediately concerned in this, though it is most closely connected with the purposes to which the process is afterwards applied; namely, classifying substances according to a certain agreement of properties, and fixing upon those which are common to

all the individuals of a numerous series, in the act of generalizing, or deducing a general fact or general principle.

I have formerly alluded to a period in the science of mind, when our ideas of external things were supposed to be certain actual essences, separated from the substances and conveyed to the thinking principle. In connexion with this theory, there arose a controversy, whether, when we perform the mental act of generalizing, there exists in nature any essence corresponding to a general idea; or whether, in generalizing, we merely make use of an abstract term: whether, for example, in using the word *man*, we only employ a term; or whether we have the power of forming an idea of man in the abstract, without thinking of any individual man: and, in the same manner, whether we can reason respecting a class of substances, without thinking of any of the individuals composing it. Hence arose two sects, whose disputes make a most remarkable figure in the history of intellectual science,—the Nominalists and Realists.

The controversies of these sects we now consider as little more than a matter of historical curiosity; but, for several centuries, they divided the learned of Europe, and were often carried on with an asperity amounting to actual persecution. "The Nominalists," says Mosheim, "procured the death of John Huss, who was a Realist; and in their letter to

Lewis, king of France, do not pretend to deny that he fell a victim to the resentment of their sect. The Realists, on the other hand, obtained, in the year 1479, the condemnation of John de Wesalia, who was attached to the party of the Nominalists. These contending sects carried their fury so far as to charge each other with the sin against the Holy Ghost." The dispute," says Mr. Stewart, " was carried on with great warmth in the universities of France, Germany, and England, more particularly in the two former countries, where the sovereigns were led by some political views to interest themselves deeply in the contest, and even to employ the civil power in support of their favourite opinions. The emperor Lewis of Bavaria, in return for the assistance which, in his disputes with the Pope, Occam had given him by his writings, sided with the Nominalists ; Lewis the eleventh of France, on the other hand, attached himself to the Realists, and made their antagonists the objects of a cruel persecution."

We find some difficulty in believing, in the present day, that the controversy which thus embroiled the continent of Europe in all the rancour of actual persecution, related to the question, whether, in employing general terms, we use words or names only, or whether there is in nature any thing corresponding to what we mean by a general idea. It is well designed by Mr. Stewart as " one of the

most curious events which occur in the history of the human mind."

The question is one of no practical importance, and, when it is cleared from its connexion with the ancient doctrine of ideas, appears to be one of no difficulty. Without supposing that there is in nature any actual essence corresponding to a general idea, the truth seems to be, that we do form a certain notion or conception of a quality in which several substances agree, distinct from any one substance to which the quality belongs. Hence some have proposed the term Notionalist, or Conceptualist, as designating opinions distinct from those both of the Nominalists and Realists. But, according to the principles of modern science, we cannot consider the discussion as any thing more than an ingenious arguing on points of no real importance. The process which the mind really carries on, in that mental operation to which these remarks have referred, consists simply in tracing relations or points of resemblance in which certain individual things agree, though they may in others be remarkably different. We then give a name to that common quality, and so form the individuals into a class of which this quality is the distinguishing character. Thus, we may take a number of animals differing remarkably from each other, and say,—they are all quadrupeds. We may take a number of substances very dissimilar in their external and mechanical properties, and say, they are all acids. Some of these

substances are solid, some fluid, and some gaseous; but the property of acidity is common to them all, and this accordingly becomes the name and the distinguishing character of the class into which we now arrange them.

SECTION III.

IMAGINATION.

In the exercise of imagination, we take the component elements of real scenes, events or characters, and combine them anew by a process of the mind itself, so as to form compounds which have no existence in nature. A painter, by this process, depicts a landscape combining the beauties of various real landscapes, and excluding their defects. A poet, or a novelist, in the same manner, calls into being a fictitious character, endowed with those qualities with which it suits his purpose to invest him, —places him in contact with other beings equally imaginary, and arranges, according to his will, the scenes in which he shall bear a part, and the line of conduct which he shall follow. The compound in these cases is entirely fictitious and arbitrary; but it is expected, that the individual elements shall be such as actually occur in nature, and that the combination shall not differ remarkably from what might really happen. When this is not attended to, as in

a picture, or a novel, we speak of the work being extravagant or out of nature. But, avoiding combinations which are grossly at variance with reality, the framer of such a compound may make it superior to any thing that actually occurs. A painter may draw a combination of beauties in a landscape superior to any thing that is actually known to exist; and a novelist may delineate a more perfect character than is met with in real life. It is remarked by Mr. Stewart, that Milton in his Garden of Eden has "created a landscape more perfect, probably, in all its parts, than has ever been realized in nature, and certainly very different from any thing that this country exhibited at the time when he wrote." "It is a curious remark of Mr. Walpole," he adds, "that Milton's Eden is free from the defects of the Old English Garden, and is imagined on the same principles which it was reserved for the present age to carry into execution."

The mode of artificial combination which results from the exercise of imagination, is chiefly applicable to four kinds of composition.

1. Fictitious narrative, in which the author delineates imaginary scenes or transactions; and paints imaginary characters, endowing them with such qualities as may suit the purpose which he has in view.

2. Composition or verbal address, directed to the passions, and intended to excite particular mental

emotions. To this head are referable many of the combinations of the poet, and addresses calculated to operate upon the feelings of a popular assembly; also, those which derive their character from the language of trope and metaphor. The genius of the orator, and the inventive powers of the poet, are exhibited in the variety and the novelty of the analogies, resemblances, illustrations, and figures, which he thus brings to bear upon his subject.

3. Those unexpected and peculiar associations which form the basis of wit and humour.

4. Combinations of objects of sense calculated to produce mental emotions of a pleasurable or painful kind, as our impressions of the sublime, the beautiful, the terrible, or the ludicrous. The combinations of this class are chiefly referable to the head of objects of taste, or the fine arts; and are exemplified in the inventions of the painter and the statuary, in decorative architecture and artificial gardening,—we may add theatrical exhibitions and music.

The facility of rapidly forming, in these several departments, combinations calculated to produce the effect which is intended, constitutes what we call *inventive genius*. Similar power of invention, founded on an exercise of imagination, may also be applied to the investigations of science. It may be employed, for example, in the contrivance of experiments, calculated to aid an investigation, or to illustrate a doctrine; and in the construction of those legitimate

hypotheses, which have often led to the most important discoveries. It leads the philosophical inquirer, not to be satisfied with observing facts as they happen to be presented to him, but to grasp after principles by eager anticipation, and then to contrive courses of observations or experiments calculated to ascertain their truth.

The union of elements, in all such productions of the imagination, is regulated by the knowledge, the taste, and the intellectual habits of the author; and, we must add, by his moral principles. According to the views, the habits, and the principles of him who frames them, therefore, they may either contribute to moral and intellectual improvement; or they may tend to mislead the judgment, vitiate the taste, and corrupt the moral feelings.

Similar observations apply to the conduct of the imagination in individuals, and its influence in the cultivation of moral and intellectual character. There is certainly no power of the mind that requires more cautious management and stern control; and the proper regulation of it cannot be too strongly impressed upon the young. The sound and proper exercise of it may be made to contribute to the cultivation of all that is virtuous and estimable in human character. It leads us, in particular, to place ourselves in the situation of others, to enter into their feelings and wants, and to participate in their distresses. It thus tends to the cultivation of sympathy and the benevo-

lent affections; and promotes all those feelings which exert so extensive an influence in the duties of friendship, and the harmonies of civil and social intercourse. We may even say that we exercise imagination, when we endeavour to act upon that high standard of morals, which requires us "to do to others as we would that they should do unto us." For in this mental act we must imagine ourselves in the situation of other men, and, in their character, judge of our own conduct towards them. Thus a man, deficient in imagination, though he may be free from any thing unjust or dishonourable, is apt to be cold, contracted, and selfish; regardless of the feelings, and indifferent to the distresses of others. Farther, we may be said to exercise imagination, when we carry our views beyond present and sensible objects, and endeavour to feel the power of "things which are not seen," and the reality of scenes and times which are yet to come. On the other hand, imagination may be employed for calling into being evils which have no existence, or for exaggerating those which are real; for fostering malevolent feelings, and for imputing to those with whom we are connected, motives and intentions which have no foundation in truth. Finally, an ill-regulated imagination may be employed in occupying the mind with waking dreams and vain delusions, to the exclusion of all those high pursuits which ought to employ the faculties of a rational being.

There has been considerable difference of opinion

in regard to the effects produced upon the mind by fictitious narrative. Without entering minutely upon the merits of this controversy, I think it may be contended, that two evils are likely to arise from much indulgence in works of fiction. The one is a tendency to give way to the wild play of the imagination, a practice most deleterious both to the intellectual and moral habits. The other is a disruption of the harmony which ought to exist between the moral emotions and the conduct,—a principle of extensive and important influence. In the healthy state of the moral feelings, for example, the emotion of sympathy, excited by a tale of sorrow, ought to be followed by some efforts for the relief of the sufferer. When such relations in real life are listened to from time to time without any such efforts, the emotion gradually becomes weakened, and that moral condition is produced which we call selfishness, or hardness of heart. Fictitious tales of sorrow appear to have a similar tendency;—the emotion is produced without the corresponding conduct; and, when this habit has been much indulged, the result seems to be, that a cold and barren sentimentalism is produced, instead of the habit of active benevolence. If fictitious narratives be employed for depicting scenes of vice, another evil of the greatest magnitude is likely to result from them, even though the conduct exhibited should be shown to end in remorse and misery. For by the mere familiarity with vice, an injury is done to the youthful mind,

which is in no degree compensated by the moral at the close.

Imagination, therefore, is a mental power of extensive influence, and capable of being turned to important purposes in the cultivation of individual character. But to be so, it must be kept under the strict control both of reason and of virtue. If it be allowed to wander at discretion, through scenes of imagined wealth, ambition, frivolity, or pleasure, it tends to withdraw the mind from the important pursuits of life, to weaken the habit of attention, and to impair the judgment. It tends, in a most material manner, to prevent the due exercise of those nobler powers which are directed to the cultivation both of science and virtue. The state of a mind, which has yielded itself to the influence of this delusive habit, cannot be more forcibly represented than in the words of an eloquent writer:—"The influence of this habit of dwelling on the beautiful fallacious forms of imagination, will accompany the mind into the most serious speculations, or rather musings, on the real world, and what is to be done in it, and expected; as the image which the eye acquires from looking at any dazzling object, still appears before it wherever it turns. The vulgar materials that constitute the actual economy of the world, will rise up to its sight in fictitious forms, which it cannot disenchant into plain reality, nor will even suspect to be deceptive. It cannot go about with sober, rational

inspection, and ascertain the nature and value of all things around it. Indeed such a mind is not disposed to examine, with any careful minuteness, the real condition of things. It is content with ignorance, because environed with something more delicious than such knowledge, in the paradise which imagination creates. In that paradise it walks delighted, till some imperious circumstance of real life call it thence, and gladly escapes thither again when the avocation is past. There, every thing is beautiful and noble, as could be desired to form the residence of an angel. If a tenth part of the felicities that have been enjoyed, the great actions that have been performed, the beneficent institutions that have been established, and the beautiful objects that have been seen in that happy region, could have been imported into this terrestrial place,—what a delightful thing it would have been to awake each morning to see such a world once more."*

To the same purpose are the words of another writer of the highest authority.—"To indulge the power of fiction, and send imagination out upon the wing, is often the sport of those who delight too much in silent speculation.—He who has nothing external that can divert him, must find pleasure in his own thoughts, and must conceive himself what he is not, for who is pleased with what he is? He

* Foster's Essays.

then expatiates in boundless futurity, and culls from all imaginable conditions, that which for the present moment he should most desire; amuses his desires with impossible enjoyments, and confers upon his pride unattainable dominion. The mind dances from scene to scene, unites all pleasures in all combinations, and riots in delights which nature and fortune, with all their bounty, cannot bestow. In time, some particular train of ideas fixes the attention; all other intellectual gratifications are rejected; the mind, in weariness or leisure, recurs constantly to the favourite conception, and feasts on the luscious falsehood whenever she is offended with the bitterness of truth. By degrees the reign of fancy is confirmed; she grows first imperious, and in time despotic. Then fictions begin to operate as realities, false opinions fasten upon the mind, and life passes in dreams of rapture or of anguish."*

SECTION IV.

OF REASON OR JUDGMENT.

The most simple view which we can take of reason, probably, is, that it is the exercise of mind by

* Johnson's Rasselas.

which we compare facts with each other, and mental impressions with external things. The applications of this mental process may be referred to the following heads:—

I. We compare facts with each other, so as to trace their relations, connexions, and tendencies; and to distinguish the connexions which are incidental from those which are fixed and uniform.

What we call the relations of things, whether referring to external events or mental processes, comprehend all those facts which form the great objects of human knowledge, with respect either to the individuals, or their tendencies towards each other. They may be briefly enumerated in the following manner:—

1. Relations of character,—or those marks, characters or properties, by which a substance may be recognised and may be distinguished from all others; for example, the botanical characters of a plant,—the chemical properties of a mineral,—the symptoms of a disease,—sensible properties of colour, taste, smell, &c.—the mental endowments and moral qualities of individual men.

2. Relations of resemblance and analogy, arising out of a comparison of the qualities of various individual substances or events. These admit of various degrees. When there is a close agreement between two events or classes of events, it constitutes resem-

blance: when there are points of difference, it is analogy. In the latter case, we then trace the degrees of analogy, depending upon the number of points in which the resemblance holds, and the number of points in which there is a difference. On the relations of resemblance, also, depend the arts of arrangement and classification; and the use of those general terms by which we learn to express a great number of individual objects by a single term, derived from certain characters in which they agree, such as solids, fluids, quadrupeds, &c. We find a certain number of substances which agree so much in their properties, that we class them together as one species. We then find other substances, which agree with these in a certain number of their properties, but differ in others. We dismiss the latter, and retain those only in which they all agree, and so form the whole into a genus. The individuals, forming the genus, are still found to agree in some of their properties with various other substances, and, by leaving out of view those in which they differ, we again form this still larger number into a class or order.

3. Nearly connected with the former, but still more extensive, is that important process by which, among a great series of facts, we trace an accordance, and thus deduce from the whole a general fact or general principle.

4. Relations of composition,—comprehending the resolution of a substance into its elements or consti-

tuent parts,—the connexion of the parts as constituting a whole,—of the whole to the parts, and of the parts to each other.

5. Relations of causation, or the tendencies of bodies to produce or be followed by certain actions upon each other in certain circumstances. These refer chiefly to that uniform sequence of events from which we derive our idea of the one being the cause of the other. But the class likewise includes other relations arising out of the same subject; such as the relation of two events as the joint causes of a common effect, or the joint effects of a common cause; or as forming links in a chain of sequences in which we have still to look for other events, as the true antecedents or final results. It includes also that most important mental process, by which, from the properties of a known effect, we infer the powers and properties of an unknown cause.

6. Relations of degree and proportion, as in those truths and relations which are the subjects of mathematics.

7. The important question of moral relations, which does not properly belong to the present part of our inquiry,—including the relation of certain actions to the great standard of moral rectitude,—and to those principles which bind men together in the harmonies of social and domestic intercourse.

These appear to include the principal relations of things, which the mind requires to investigate in

an intellectual point of view. The facts respecting them are acquired by attention and memory; but it is the province of reason to separate, in the mass so acquired, those which are incidental and temporary from those which are uniform,—to ascertain, for example, those characters by which a substance may be certainly recognised,—the symptoms by which a disease may be distinguished from other diseases which resemble it,—and the actions which a substance may be confidently expected to produce upon other substances in particular circumstances. When the mental process required for doing so is performed in a legitimate manner, the deduction constitutes *truth*, in regard to the particular point which is the immediate subject of it; when the contrary, it leads to fallacy or *falsehood*. Hence reason has sometimes been defined, that exercise of mind by which we distinguish truth from falsehood.

II. Having, by the preceding processes, ascertained the uniform tendencies of bodies to be followed by certain actions upon each other, we bring these tendencies into operation for the production of certain results. Hence reason has been considered, also, to be that power, by which we combine means for accomplishing an end; but this, perhaps, may be regarded rather as the practical application of the knowledge to which reason leads us, than as a primary part of the province of reason itself.

III. We compare mental impressions with external things, so as to correct the impressions of the mind in regard to the external world. Mental processes of the most important kind are connected with this application of reason.

Reason or judgment, when duly exercised, conducts us through these various mental operations, and guides us towards the discovery of truth. It does so by enabling us to compare facts with facts, and events with events; to weigh their relations, bearings, and tendencies; and to assign to each circumstance its proper weight and influence in the conclusions which we are to deduce from them. The person who does so, we call a man of sound judgment, whose opinions and conclusions we receive with confidence. On the contrary, we receive with distrust and suspicion the conclusions of a man of an opposite character, who forms his opinions and deductions hastily,—that is, from a limited number of facts, or a hasty and imperfect examination of their relations.

A distinction has sometimes been made between the term reason, as used in the language of science, and as employed in the common affairs of life: but there seems to be no real ground for the distinction.

Reason, in the language of intellectual science, appears to be that process by which we judge correctly of the true and uniform relations of facts or

events, and give to each circumstance its due influence in the deductions. It is chiefly opposed to imagination, in which the mind is allowed to ramble through chains of events which are connected by loose and casual associations, leading to no true results. It is also distinguished from simple memory, in which facts or events are connected in the mind by certain principles of association, without a full view of their relations. Thus, when we find a person remembering an extensive collection of facts, and forming certain combinations among them, or deductions from them, without attending to points of difference which tend to other deductions, we say, his memory is better than his judgment.

Reasoning, again, appears to be the consecutive exercise of reason, when applied to the investigation of a particular subject, or a certain series of facts or events, so as to trace their relations or to establish a particular conclusion as deduced from such a series. This process, however, which is commonly called the Discursive Faculty, is to be distinguished from the simple exercise of reason. It ought to be guided by reason, that is, by a full view of the real relations of the facts about which it is exercised; but it is often allowed to fix on a slight and partial view of them; or is applied ingeniously to discover relations of a particular kind only. Thus, we speak of a man who reasons closely, or with correct attention to the real relations of things, and the true weight of every fact

in the investigation; of another who reasons loosely, or who is led away by casual relations, and partial views, affording no true deductions; and of a third who reasons ingeniously and plausibly, but not soundly,—that is, who argues on one side of a question, and contemplates facts in particular relations only, or as supporting particular opinions, neglecting those views of them which tend to a different conclusion. This art of ingenious reasoning or disputation, accordingly, we shall afterwards have occasion to show, is not only to be distinguished from the sound exercise of reason or judgment, but is often found directly opposed to it.

In the language of theology, reason is distinguished from revelation; and means that exercise of the mind, by which we deduce a certain knowledge of the Deity from the power and wisdom displayed in the works of creation, apart from any direct revelation of his character and will.

In the language of common life, the mental process, which we term reason or judgment, appears to be the same, though the facts on which it is exercised may be different. A reasonable man is one who, both in the formation of his opinions and the regulation of his conduct, gives the due weight and influence to all the facts and considerations which ought to influence his decision. A man of the opposite character is one who takes up his opinions upon slight, partial, and inadequate grounds; and then

cannot, or will not, admit the impression of facts or arguments which are calculated to correct these unsound deductions; or who, in the regulation of his conduct, is led away by hasty impressions, or feeble and inadequate motives, without giving due consideration to those which are calculated to lead him into a different course. The former, we call a reasonable, considerate, thinking man; the latter, we say, is an unreasonable, inconsiderate man, who cannot or will not think. It also very often happens that the latter, having formed his conclusions, is obstinately tenacious of them; while the former is still open to the true and full impression of any new fact or argument that is proposed to him. Solomon has expressed in a very striking manner the leading features of two such characters, namely, of the man who takes up opinions with little examination, and then adheres to them with inaccessible pertinacity; and him who forms them only after full and candid examination, and with a clear conception of the grounds on which they are formed;—"the sluggard is wiser in his own conceit than seven men that can render a reason."

The process of mind which we call reason or judgment, therefore, seems to be essentially the same, whether it be applied to the investigation of truth or the affairs of common life. In both cases, it consists in comparing and weighing facts, considerations and motives, and deducing from them conclusions, both

as principles of belief, and rules of conduct. In doing so, a man of sound judgment proceeds with caution, and with due consideration of all the facts which he ought to take into the inquiry. Having formed his conclusions, he is still open to the influence of new facts, by which they may be corrected or modified; but he is not to be shaken in his confidence by trivial statements, or frivolous objections. Opposed to this there are two modifications of character which present an interesting subject for observation. Both form their conclusions hastily, and without due examination of the facts and considerations which ought to influence them; but their subsequent conduct is widely different. The one is shaken in his conclusions by every new fact that is presented to him, and every slight objection that is brought against his inductions; and the consequence is, that his opinions and his principles of conduct are constantly changing. The other, having framed his opinions, though on grounds the most inadequate, adheres to them with inaccessible firmness; and seems totally proof against the force of any facts or arguments that can be brought against them. The former is the more hopeful character of the two,—his error consisting in a want of attention, rather than of judgment; or in a habit of framing his conclusions too hastily. By education, or exertion on his own part, this habit may be corrected in a greater or less degree; but the latter appears to labour under a

radical defect of judgment, which makes him insensible to the due force of the considerations and arguments which influence other men. In the affairs of life, the former, after perhaps committing various indiscretions, acquires wisdom from experience,—that is, by having the fallacy of his conclusions in many instances forced upon him. The latter remains unchanged; retaining the same confidence in his own conclusions, and the same contempt for every thing that can be opposed to them. This unfortunate condition of mind, though it may have had its origin in peculiarity of mental constitution or deficient education, is fostered and increased by indulgence, and by a neglect of cultivating the important habit of calm and candid investigation. The man seems at last to become totally insensible to the motives and evidences which influence other men; and the more striking and convincing these may be to others, the more remarkable appears the condition of that mind which does not feel or estimate their importance. This state of mind is emphatically ascribed, in the sacred writings, to the man who denies the existence of a great first cause;—"the fool hath said in his heart, there is no God." By some process of mind, known to himself, he has arrived at this conclusion; and he is totally insensible to the manifold evidence, which meets him wherever he turns his eye, of its futility and folly. And surely if there is among human beings an affecting representation of a mind lost to

every function of a healthy understanding, incapable of rising from effects to causes, or of tracing the relations of things,—a mind deserted by its rightful guardian, and left the unprotected victim of every wild delusion that flutters by,—it is to be found in him, who, possessed of the senses of a living man, can stand before the fair face of creation, and say in his heart—" there is no God."

In every exercise of judgment, it is of essential importance, that the mind shall be entirely unbiassed by any personal feeling or emotion which might restrain or influence its decisions. Hence the difficulty we feel in deciding on a subject in which we are deeply interested, especially if our inclination, and the facts and motives presented by the case, be in any degree opposed to each other. Thus, we speak of a man who allows his feelings to influence his judgment; and of another, of a cool head, who allows no feeling to interfere with his decisions. Any particular emotion, which has been deeply indulged and fostered, comes in this manner to influence the judgment in a most extraordinary degree. It is thus that a vitiated and depraved state of the moral feelings at last misleads the judgment, in regard to the great principles of moral rectitude; and terminates in a state of mind, emphatically described in the sacred writings, in which a man puts evil for good and good for evil, and is left to the in-

fluence of strong delusion, so that he "believes a lie." This remarkable condition of the power of reasoning and judging, we cannot refer to any principle with which we are acquainted; but we must receive it as a fact in the history of our moral constitution, which is not to be questioned. A poet has sung, that vice, which at first is hated as an odious monster, is, when seen too oft, endured, then pitied, then embraced: and he has only added his evidence to a fact, which has been received upon the testimony of the philosopher and the moralist in every age, and is acted upon as a fixed and uniform principle of our nature by all classes of men.

Upon the grounds which have been briefly referred to in the above observations, it will appear, that the principles, on which a man should form his opinions, are essentially the same with those by which he ought to regulate his conduct. If this conclusion be admitted, it will enable us to perceive the fallacy of a dogma which has often been brought forward with much confidence,—that a man is not responsible for his belief. When taken abstractly, this is true; but, in the practical application of it, there is a great and dangerous fallacy. In the opinions which a man forms on any particular subject, he is indeed influenced, not by his own will, but by the facts or evidence by which the doctrines are supported; and, in this sense, a man may justly be said, not to be responsible for his belief. But when

we apply the principle to practical purposes, and especially to those truths of religious belief, to which the dogma has been pointed, it may easily be seen to be as fallacious as it is dangerous. A man is undoubtedly responsible for the care with which he has informed himself, of the facts and evidences by which his belief on these subjects ought to be influenced; and for the care, attention, and anxiety with which he gives to each of these facts and evidences its due weight in the momentous inquiry. He is farther responsible for any degree of that vitiated and corrupted state of the moral feelings, by which his judgment may have been biassed, so as to prevent him from approaching the subject with the sincere desire for truth, of a pure and uncontaminated mind. If, in this sense, we say that a man is not responsible for his belief, we may quite as reasonably allege, that he is not responsible for his conduct, because he chooses, on some slight and partial grounds, to frame for himself principles of action, without taking into consideration those fundamental rules of moral rectitude by which mankind in general are expected to be influenced. We may as well contend, that the man is not responsible for his conduct, who, by long familiarity with vice, has lost sight of its malignity, and has come to approve and love that which he once contemplated with abhorrence.

It appears, then, that the exercise of reason is

precisely the same, and is guided by the same laws, whether it be applied to the investigation of truth, or to the regulation of conduct. The former is more particularly connected with the farther prosecution of our inquiry; but the leading principles apply equally to the great question of morals, and the important subject of religious belief. In prosecuting the subject as a branch of intellectual science, it seems to resolve itself into two parts :—

I. The use of reason in the investigation of truth.

II. The use of reason in correcting the impressions of the mind in regard to external things.

Before proceeding to these branches of the subject, however, this may perhaps be the proper place for again stating in a few words, that, in the preceding observations, my object has been to confine myself to facts, respecting the processes which the mind actually performs, without entering on the question how it performs them. On this subject we find great differences among philosophers, which I have alluded to only in an incidental manner. Some appear to have spoken in too unqualified terms, respecting various and distinct FACULTIES of the mind, and have enumerated a variety of these, corresponding to the various mental operations. Dr. Brown, on the other hand, has followed a very

different course, by referring all our mental processes to the two principles of simple and relative suggestion. According to this eloquent and ingenious writer, we have no direct voluntary power over the succession of our thoughts; but these follow each other in consequence of certain principles of suggestion, by which conceptions, in certain circumstances, call up or suggest other conceptions, which are in some manner related to them. We have the power only of fixing the mind more intensely upon some images of this series, when they arise, in consequence of approving of them, as referring to some subject of thought which is before us, while we disapprove of others of the series as less allied to it. The former become more fixed and vivid in consequence of this approbation, while the latter are allowed to sink back into oblivion. What systematic writers have called the faculty of conception, is, according to this system, the simple presence in the mind of one of these suggested or recalled images. Memory is this simple suggestion combined with the impression of past time. In imagination again, which has been considered as a voluntary power of forming conceptions or images into new combinations, by a peculiar mental process, Dr. Brown believes that we have only the power of perceiving images as they are brought up by established principles of suggestion,—approving of some which thus become fixed, and disapproving

of others which thus pass away. In thus approving or disapproving of the suggested images, we are guided by a perception of their relation to any particular subject which is before us, and which we may desire to cultivate or illustrate. According to this writer, therefore, what is usually called conception, is simple suggestion ;—memory is simple suggestion with a feeling of past time ;—imagination is simple suggestion combined with desire and with a perception of relation. The relative suggestion of Dr. Brown, again, is that perception of relations arising out of the comparison of different facts or objects, which we have treated of under the more familiar name of judgment ;—and the mental process, usually called abstraction, he resolves simply into a perception of resemblances. Various objections might be urged against this system ; and we may, perhaps, be allowed to doubt, whether, by means of it, any thing has been gained to the science of mind. But the plan which I proposed to myself in this outline does not lead me into any consideration of it, or of those systems to which it is opposed. My object has been simply to inquire *what* the mind does, without entering on the question *how* it does so. On this ground, the division which has been adopted of distinct mental operations, not distinct faculties, appears to be that best calculated for practical utility.

§ 1.

ON THE USE OF REASON IN THE INVESTIGATION OF TRUTH.

In applying our reason to the investigation of truth in any department of knowledge, we are, in the first place, to keep in mind, that there are certain intuitive articles of belief, which lie at the foundation of all reasoning. For, in every process of reasoning, we proceed by founding one step upon another which has gone before it; and, when we trace such a process backwards, we must arrive at certain truths which are recognised as fundamental, requiring no proof, and admitting of none. These are usually called First Truths. They are not the result of any process of reasoning, but force themselves, with a conviction of infallible certainty, upon every sound understanding, without regard to its logical habits or powers of induction. The force of them is accordingly felt in an equal degree by all classes of men; and they are acted upon with absolute confidence in the daily transactions of life. This is a subject of great and extensive importance. The truths, or articles of belief, which are referable to it, were briefly mentioned in a former part of our inquiry: they are chiefly the following.

I. A conviction of our own existence, as sentient and thinking beings; and of mind, as something distinct from the functions of the body. From the first exercise of perception, we acquire a knowledge of two things,—the thing perceived,—and the sentient being who perceives it. In the same manner, from the exercise of any mental operation, such as memory, we acquire an impression of the thing remembered,—of an essence or principle which remembers it,—and of this essence as something entirely distinct from any function of the body. This last conviction must be considered as a first truth, or intuitive article of belief, standing on the same ground with the other truths which are referable to this class. It does not, as was formerly stated, rest upon any metaphysical or physiological argument, but upon an appeal made to the conviction of every man who attends to what is passing within. It resolves itself into a consciousness of the various mental processes, impressions and emotions, as referable to one permanent and unchanging essence, while the body is known to be in a constant state of change; and of these processes as being exercised without any necessary dependence upon present impressions from external things. Like other truths of this class, it is, consequently, unaffected by sophisms which are brought against it; and the answer to these does not properly consist in any process of reasoning, but in this appeal to every man's absolute conviction. If

brought into comparison, indeed, the evidence which we have for the existence of mind, is, perhaps, less liable to deception, than that which we have for the existence of matter.

II. A confidence in the evidence of our senses, in regard to the existence and the properties of external things; or a conviction, that these have a real existence independently of our sensations. We have formerly referred to a celebrated doctrine, by which it was maintained, that the mind perceives only its own ideas or impressions; and that, consequently, we derive from our senses no evidence of the existence of external things. The only answer to such a sophism is, that a confidence in the evidence of our senses is a first truth, or intuitive principle of belief, admitting of no other proof than that which is derived from the universal conviction of mankind.

III. A confidence in our own mental processes;—that facts, for example, which are suggested to us by our memory, really occurred.

IV. A belief in our personal identity. This is derived from the combined operation of consciousness and memory; and it consists in a remembrance of past mental feelings, and a comparison of them with present feelings as belonging to the same sentient being. There were formerly many disputes on

this subject,—some maintaining that the notion of personal identity is inconsistent with the different states in which the mind exists at different times, as love and hatred, joy and sorrow,—and also with the remarkable changes of character, which often take place at different periods of life. This was one of the sophisms of the schools, founded upon an obscure analogy with changes which take place in material things, and is not at all applicable to mind. The only answer to the paradox is, that every man, under every variety of mental emotion, and every possible change of character, retains an absolute conviction, that the sentient being whom he calls himself remains invariably the same; and that, in all the affairs of life, whether referring to the past or the future, every man acts upon this conviction.

V. A conviction that every event must have a cause, and a cause adequate to the effect; and that appearances, showing a correct adaptation of means to an end, indicate design and intelligence in the cause. These, as fundamental truths, are quite distinct from the question relating to the connexion of any two specified events as cause and effect. The latter belongs to another part of our inquiry.

VI. A confidence in the uniformity of nature; or, that the same substance will always exhibit the same characters; and that the same cause, under the same

circumstances, will always be followed by the same effect. This, as a first truth, is a fundamental and instinctive conviction. The province of experience, we have already seen, is to ascertain the particular events, which are so connected as to be included under the law.

Our confidence in the uniformity of nature is the foundation of all the calculations which we make for the future, in regard to our protection, or comfort, or even for the continuance of our existence; and, without it, the whole system of human things would be thrown into inextricable confusion. It is referable to the two heads now stated,—uniformity of characters, and uniformity of sequences or operations.

By uniformity of characters, in any substance, we mean, that the substance will always continue to exhibit the same combination of characters, so that when we have ascertained its presence by some of them, we conclude that it also possesses the others. These characters may be numerous, and referable to various classes,—such as the botanical characters of a plant,—the chemical properties of a mineral,—sensible qualities of smell, taste, and colour,—and capabilities of action upon other bodies. Such is our confidence in the undeviating uniformity of nature, that, whatever number of these qualities we have ascertained to belong to a substance, we expect to find in every specimen of it in all time coming. For

example, I find a substance which, by its smell and colour, I know to be opium. Without any farther information, I decide with confidence, on its taste, its composition, its chemical affinities, its action on the human body, and the characters of the plant from which it was derived; and I never calculate upon the possibility of being deceived in any of these particulars.

Our confidence in the uniformity of the sequences or operations of nature, resolves itself into a conviction of the continuance of that order which experience has shown us to exist in a uniform manner, in the succession of phenomena. The conviction itself is an original or instinctive principle, felt and acted upon by all classes of men, in the daily transactions of life. It is from experience that we learn the particular cases to which we are warranted in applying it; or, in other words, the successions of phenomena which, there is sufficient ground for believing, have occurred in a certain order in time past. These we expect with perfect confidence to continue to be equally uniform, or to occur in the same order in time to come. The error to be guarded against in such investigations, is, assuming the past uniformity of phenomena on insufficient grounds, or, in other words, concluding that events have always occurred in a certain order, because we have seen them occur in that order in a few instances. A principle assumed in this manner may, of course, disap-

point us, if applied to future phenomena; but, in this case, there is no deviation from the uniformity of nature,—the error consisted in assuming such a uniformity where none existed.

The uniformity of the sequences of phenomena is the foundation of our idea of causation, in regard to these phenomena; that is to say, when we have observed one event uniformly follow another event, we consider the first as cause, and the second as effect; and, when this relation has been ascertained to be uniform, we conclude that it will continue to be uniform, or that the same cause, in the same circumstances, will always be followed by the same effect. This expectation will, of course, disappoint us, if we have assumed the relation on inadequate grounds; or have considered two events as cause and effect, which have been only accidentally combined in a few instances. To entitle us to assume that the relation will be uniform in time to come, we must have full and adequate grounds for believing that it has been uniform in time past.

In the great operations of nature, a very extensive observation often enables us to trace a remarkable uniformity, even in regard to events which at first sight appear to be most irregular and uncertain. Thus, the most uncertain of all things is human life, as far as respects individuals; but the doctrine of the continuance of life, in regard to a large body of men, is by extensive observation reduced

almost to a certainty. Nothing is more uncertain than the proportion of males and females that shall be born in one family; but, in great communities, this also is uniform. There is much uncertainty in the character of different seasons, but there are facts which give probability to the conjecture, that, in a long series of years, there may also be discovered a remarkable uniformity. An impression of this kind was carried so far by the ancients, as to lead to the doctrine of the Annus Magnus, or Platonic year, in which it was believed, that the whole series of human events would be acted over again.

The uniform successions of phenomena are, with reasonable care, easily ascertained in regard to material things; and, when they are ascertained, we rely upon their uniform continuance; or, if we find a deviation in any instance, we easily ascertain the incidental cause by which the sequence is interrupted, and can provide against the interference of the same or any similar cause in future instances. There is greater uncertainty when our researches refer to the phenomena of mind, or the actions of living bodies. The causes of this uncertainty were formerly mentioned. It arises, partly from the greater difficulty of ascertaining the true relations,—that is, of tracing causes to their true effects, and effects to their true causes; and partly from the tendency to these being interrupted in future instances, by some new cause, in regard to which we cannot calculate either the ex-

istence or the precise effects. Hence, for example, the uncertainty of human laws; one of the contingencies by which they are interrupted, being the chances of evading them. If we could conceive a case, in which every crime was with certainty detected, and every criminal brought to punishment, it is probable that the effect of human laws would be nearly as certain as the operation of material causes. But the criminal, in the first instance, calculates on the chances of evading detection, and, even in the event of detection, of escaping punishment; and thus, the tendency of the wisest laws is constantly interrupted, in a manner which no human wisdom can calculate upon or prevent. There is often a similar uncertainty in human character, in other situations; for example, in judging how an individual will act in particular circumstances, or be influenced by particular motives; for a motive which we have found to induce a particular line of conduct in one individual, may fail in producing the same result in another, being prevented by circumstances in his moral condition, which entirely elude our observation.

Yet there is a uniformity in moral phenomena, which, though it may be ascertained with greater difficulty than the order of natural phenomena, we calculate upon with similar confidence, when it has been ascertained. Thus, a man may have acquired such a character for integrity, that we rely upon his

upright conduct in any situation in which he may be placed, with the same confidence with which we rely on the uniformity of nature; and there is a man distinguished by veracity and fidelity to his promise, of whom we say, in common language, that his word is as good as his bond. In such examples as these, indeed, our confidence is founded, not upon any laws which have been observed in regard to the whole species, but on a uniformity which has been observed in regard to the individuals, or rather a class to which the individuals belong. There are also, however, laws which apply to mankind in general, and on which we rely as far as they go; namely, principles of conduct in which we confide, as regulating every man of a sane mind, whatever may be our knowledge of his previous habits of judging or acting. It is in this manner, for example, as formerly stated, that we regulate our confidence in testimony. If a man, who is either a stranger to us, or bears a character of doubtful veracity, relates circumstances which tend greatly to promote his own purposes, we calculate on the probability of fabrication, and reject his testimony; and, if we even suspect that he has a purpose to serve, a similar impression is produced. If, on the contrary, we are satisfied that the circumstances are indifferent to him, and that he has no purpose to answer, we give greater credit to his testimony. If, farther than this, we perceive that the statement operates against himself, conveying an

imputation against his own conduct, or exposing him to contempt, ridicule, or personal injury, we are satisfied that nothing could make him adhere to such a testimony, but an honest conviction of its truth. Under the former circumstances, we believe only a man whom we consider as a person of known and established veracity; under the latter, we believe any man whom we consider to be of a sane mind. Thus, in both instances, we proceed upon a certain uniformity of moral phenomena; only that we refer them to two classes,—namely, one which is ascertained to be uniform in regard to the whole species, and another which is uniform only in regard to a certain order, that is, all men of integrity and veracity. In the one case, we rely upon the uniformity in every instance; in the other, we do not rely upon it until we are satisfied that the individual example belongs to that order, in which the other kind of moral uniformity has been ascertained.

There are other inquiries closely connected with the uniformity of moral relations; but at present we must allude to them very briefly. We have every reason to believe that there are moral causes, that is, truths and motives, which have a tendency to influence human volition and human conduct, with a uniformity similar to that with which physical agents produce their actions upon each other. These moral causes, indeed, do not operate in every instance, or in all circumstances; but neither do physical causes.

Substances in chemistry, for example, have certain tendencies to act upon each other, which are uniform and necessary; but no action takes place, unless the substances are placed in certain circumstances which are required for bringing these tendencies into operation. They must, in the first place, be brought into contact; and, besides this, many of them require other collateral circumstances, as a particular temperature, or a particular state of concentration or dilution. It is the same with moral causes; their tendencies are uniform, and there are principles in the mind of man which these are adapted for acting upon. But they require certain circumstances in the man on whom they are expected to act, without which they produce no influence upon him. It is necessary, for example, that he be fully informed in regard to them as truths; and that his attention be directed to them with such a degree of intensity as shall bring him fully under their influence as statements addressed to his understanding; also, that there be a certain healthy state of his moral feelings,—for this has a most extensive influence on the due operation of moral causes. Without these, the most powerful moral causes may produce no effect upon a man; as the most active chemical agents may fail entirely of their actions, if the substances are not placed in the requisite circumstances of temperature, dilution, or concentration.

These considerations seem to bear an important

reference to a question which has been much argued, namely, that respecting liberty, necessity, and the freedom of the will. On a subject on which some of the wisest and the best of men have been found on opposite sides, I would express myself with becoming caution and diffidence; but, perhaps, some of the obscurity in which the question has been involved, arises from the want of a clear definition of the terms in which it has been argued; and from not fully distinguishing between *will* or *simple volition*, and *desire* or *inclination*. Will, or simple volition, is the state of mind which immediately precedes action; and the action following upon this not only is free, but it is absolutely impossible to suppose it should be otherwise. Not only is a man free to do what he wills, but we cannot conceive a case in which he could exert a power of not doing what he wills, or of doing what he wills not. Impulse or restraint from without, acting upon his bodily organs, could alone interfere with his following, in this sense, the tendency of his will, or simple volition. The only idea, indeed, that we can form of free agency, or freedom of the will, is, that it consists in a man being able to do what he wills, or to abstain from doing what he wills not. Necessary agency, on the other hand, would consist in the man being compelled, by a force from without, to do what he wills not, or prevented from doing what he wills.

The real bearing of the inquiry does not lie in

this connexion between the volition and the act, but in the origin or cause of the volition, or in the connexion between the volition and the desire; and this will be seen to be entirely distinct. A man, for example, may desire, or have an inclination to, that which he has not the power to will; because he may be under the influence of motives and principles which prevent the inclination from being followed by volition, with as absolute a necessity as we observe in the sequences of natural phenomena. Thus, also, we may say to a man of strict integrity and virtue, that he has not the power to commit murder or robbery, or any act of gross injustice or oppression. He may reply, that he has the power to do it if he willed; and this is granted, for this is free agency; but it is not the question in dispute. We do not say that he has not the power to do any or all of these acts, if he willed, but that he has not the power to will such deeds. He is under the influence of motives and principles, which make it as much a matter of necessity for him not to will such acts, as it is for a stone not to rise from the earth's surface contrary to its gravity. Such a necessity as this, if we must retain the term, so far from being unfavourable to the interests of virtue and morals, or opposed to the practice of exhorting men to virtue, seems, on the contrary, to hold out the strongest encouragement in doing so; and to be, in fact, the only scheme on which we can expect an argument or motive to have

any influence upon human conduct. For it represents man as possessed of certain uniform principles in his nature, which are capable of being acted upon by certain moral causes, truths, laws, or motives, with a uniformity similar to that which we observe in physical phenomena, provided he can be brought under their influence, and into those circumstances which are required for their due operation. These circumstances are,—that the moral causes, laws, motives, or truths, shall be brought before his understanding; that he shall direct his attention to them with suitable intensity; and that he is free from that degree of corruption of his moral feelings, or any of those distorted moral habits, which we know to produce a most extensive influence on the operation of moral causes. To suppose a kind of moral liberty opposed to such a necessity as this, would be to represent man as a being possessed of no fixed or uniform principles,—not to be calculated upon as to his conduct in any instance,—and not capable of being acted upon by any motive or principle, except the blind caprice of the moment. To endeavour to act upon such a being, by persuading him to virtue or dissuading him from vice, would be like expecting fixed results in chemistry, by bringing substances to act upon each other, the actions of which we had previously found to be without any kind of uniformity. This is in fact precisely the situation of the maniac, whom, accordingly, we never expect to guide

or influence by motives or arguments, but by external restraint. He may act harmlessly, or he may act mischievously; but we never can calculate upon his actions in any one instance; we therefore shut him up so as to prevent him from being dangerous to the community.

Necessity, then, as applied to the operation of moral causes, appears simply to correspond with the uniformity which we observe in the operation of physical causes. We calculate that a man of a certain character will act in a particular manner in particular circumstances, or that he will be acted upon in a certain manner by particular truths and motives, when they are presented to him,—by a principle of uniformity similar to that with which we expect an acid to act in a particular manner upon an alkali. The action of the acid we know to be uniform, but we know also, that no action will take place till the substances are brought fully into contact, and in certain circumstances which are required for their action;—and the action of moral causes is uniform, but they exert no influence on a man till he is fully acquainted with them,—directs his attention to them with suitable care,—and is besides in a certain healthy state of moral feeling. It is thus that we calculate on the full and uniform operation of moral causes on some individuals, and not on others; namely, by having previously ascertained that the former are in those intellectual and moral circumstances which are re-

quired for their action. When, in another individual, we find these causes fail in their natural actions, we endeavour, as far as may be in our power, to supply those collateral circumstances,—by instructing him in the facts, truths, or motives;—by rousing his attention to their importance;—by impressing them upon him in their strongest characters, and by all such arguments and representations as we think calculated to fix the impression. All this we do under a conviction, that these causes have a certain, fixed, uniform, or necessary action, in regard to human volition and human conduct; and it is this conviction which encourages us to persevere in our attempts to bring the individual under their influence. If we had not this conviction, we should abandon the attempt as altogether hopeless; because we could have no ground on which to form any calculation, and no rules to guide us in our measures. Precisely in the same manner, when we find a chemical agent fail of the effect which we expect from it, we add it in larger quantity, or in a state of increased concentration, or at a higher temperature,—or with some other change of circumstances calculated to favour its action; and we persevere in these measures, under a conviction, that its action is perfectly uniform or necessary, and will take place whenever these circumstances have been provided for. On the same principle, we see how blame may attach to the intelligent agent in both cases, though the actions of the

causes are uniform and necessary. Such is the action of chemical agents, but blame may attach to the chemist who has not provided them in the necessary circumstances, as to quantity, concentration, and temperature. Such is the action of moral causes,—but deep guilt may attach to the moral agent, who has been proof against their influence. There is guilt in ignorance, when knowledge was within his reach ;—there is guilt in heedless inattention, when truths and motives of the highest interest claimed his serious consideration ;—there is guilt in that corruption of his moral feelings which impedes the action of moral causes, because this has originated, in a great measure, in a course of vicious desires, and vicious conduct, by which the mind, familiarized with vice, has gradually lost sight of its malignity. During the whole of this course, also, the man felt that he was a free agent ;—that he had power to pursue the course which he followed,—and that he had power to refrain from it. When a particular desire was first present to his mind, he had the power immediately to act with a view to its accomplishment ; or he had the power to abstain from acting, and to direct his attention more fully to the various considerations and motives which were calculated to guide his determination. In acting as he did, he not only withheld his attention from those truths which were thus calculated to operate upon him as a moral being ; but he did still more direct violence to an impulse within.

which warned him that he was wandering from the path of rectitude. The state of moral feeling, which gradually results from this habitual violation of the indications of conscience, and this habitual neglect of the serious consideration of moral causes, every individual must feel to be attended with moral guilt. The effect of it is not only to prevent the due operation of moral causes on his future volitions, but even to vitiate and distort the judgment itself respecting the great principles of moral rectitude. Without attempting any explanation of this remarkable condition of the mental functions, its actual existence must be received as a fact in the constitution of human nature, which cannot be called in question; and it offers one of the most remarkable phenomena that can be presented to him who turns his attention to the moral economy of man.

Before concluding this incidental allusion to a much controverted subject, I may be allowed to remark, that the term necessity, as applied to moral phenomena, is not fortunate, and perhaps not philosophical; and something would perhaps be gained in conducting the inquiry, if, for *necessity*, we were to substitute *uniformity*. In strict propriety, indeed, the terms necessity and necessary ought to be applied only to mathematical truth. Of physical relations, all that we know is the fact of their uniformity; and it would appear equally philosophical to apply the same term to mental phenomena. On

this principle, therefore, we should say,—that the tendency of moral causes or motives is not necessary, but uniform; and that on this depends all our confidence in the uniformity of human character, and in the power of truths, motives, or arguments, to produce particular results on human conduct. To suppose the mind possessed of a power of determining, apart from all this influence of moral causes or motives, would be to overthrow this confidence, and to reduce our whole calculations on human character to conjecture and uncertainty. When, indeed, we talk of a self-determining power of the will, we seem to use a combination of words without any definite meaning. For the will is not distinct from the being who wills; and to speak of an individual determining his will, is only saying, in other words, that he wills. He wills some act, for some reason which is known to himself: if communicated to another, the reason might not appear a satisfactory one,—but it is to him the reason which induced him to will the act, and this appears to be all that we can make of the subject. A power of determining without any reason, appears to be not only unphilosophical, but, in point of fact, inapplicable to any conceivable case. Ignorance, inattention, or gross perversion of the moral feelings, may make the worse reason appear the better; but we cannot conceive a case, in which an individual could exert a power of determining without any reason, or according

to what appears to him at the time to be a weaker reason, in opposition to one which appears a stronger. It will also, I think, be found, that the warmest advocates for philosophical liberty, and a self-determining power, in actual practice recognise as much as others the principle of the uniformity of moral causes. Thus, if we find a person acting in a manner widely different from that which we expected from him, all men concur in saying, "What motive could induce him to act in that manner?" and if we cannot reconcile his conduct to any conceivable motive, we say, "it really looks like insanity." Another may remark, "his conduct indicates a singular want of consideration;"—thus clearly recognising the existence of certain motives or moral causes, which would have led the man into a different line of conduct, had he allowed his attention to fix upon them. The doctrine of a self-determining power should remove every difficulty in such a case, to those who believe in it; but I am not aware that it ever was made use of for such a purpose. It will also be found to agree with the universal conviction of mankind, that the circumstance, which gives to an action the character of merit or demerit, is entirely the motive from which it was done; and that, if we could conceive such a thing as an action performed by the impulse of a free self-determining power, apart from any influence of motives or moral causes, no man of sane mind would for a moment

allow to such an act the character of virtue. On the contrary, it is familiar to every one, that we often find in a man's motive an excuse for conduct in which we think he has acted wrong. We say, he erred in judgment, but his motive was good; and this mode of reasoning meets with the cordial concurrence of the whole mass of mankind.

The First Truths, or intuitive principles of belief, which have been the subject of the preceding observations, are of the utmost practical importance, as they furnish the true and only answer to many of the sophisms of the scholastic philosophy, and to many sceptical arguments of more modern times. They admit of no other evidence than an appeal to the consciousness of every man, that he does and must believe them. "We believe them," says Dr. Brown, "because it is impossible not to believe them."—"In all these cases," says Mr. Stewart, "the only account that can be given of our belief is, that it forms a necessary part of our constitution, against which metaphysicians may argue, so as to perplex the judgment, but of which it is impossible to divest ourselves for a moment, when we are called to employ our reason, either in the business of life or in the pursuits of science."

It is likewise to be kept in mind, as was formerly stated, that our idea of reasoning necessarily supposes the existence of a certain number of truths, which require and admit of no evidence. The maxim, indeed, is as old as the days of Aristotle, and has never been called in question, "that, except some first principles be taken for granted, there can be neither reason nor reasoning; that it is impossible that every truth should admit of proof, otherwise proof would extend *in infinitum*, which is incompatible with its nature; and that, if ever men attempt to prove a first principle, it is because they are ignorant of the nature of proof."* As these truths, therefore, do not admit of being called in question by any sound understanding, neither do they admit of being supported by any process of reasoning; and, when paradoxes or sophisms in opposition to them are proposed, any attempt to argue with such, upon logical principles, only leads to discussions as absurd as themselves. Of attempts of both kinds, many examples are to be met with among the writers of the sixteenth and seventeenth centuries, as Des Cartes and Hobbes; and even some eminent persons, of more modern times, are not entirely free from them. Thus, Des Cartes, Malebranche and others, thought it necessary to prove, that external objects, and the sentient beings with

* Aristotle's Metaphysics, book iv.

whom we are connected, have a real existence, whether we think of them or not, and are not merely ideas in our own minds. Berkeley showed the weakness of this argument, and on this founded the well-known doctrine by which he denied the real existence of all material things.

Many of the dogmas of modern sophistical writers, such as Mr. Hume, have consisted of attempts to overturn, by processes of argument, these fundamental or first truths. On the other hand, the unsatisfactory nature of some of the replies to these sophisms, depends upon the attempts to combat them having been made by reasonings, of which the subject is not susceptible. For these principles admit of no proof by processes of reasoning, and, consequently, are in no degree affected by demonstrations of the fallacy of attempts to establish them by such processes. An interesting illustration of this has been preserved by Mr. Stewart, in a correspondence between Mr. Hume and Sir Gilbert Elliot.* "From the reply to this letter," says Mr. Stewart, "by Mr. Hume's very ingenious and accomplished correspondent, we learn, that he had drawn from Mr. Hume's metaphysical discussions, the only sound and philosphical inference;—that the lameness of the proofs offered by Des Cartes and his successors,

* Introductory Essay to the Appendix of the Encyclopædia Britannica.

of some fundamental truths, universally acknowledged by mankind, proceeded, not from any defect in the evidence, but, on the contrary, from their being self-evident, and consequently unsusceptible of demonstration." The same view of Mr. Hume's sceptical reasonings was taken by other eminent persons, by whom his system was attacked,—particularly Reid, Beattie, and Oswald; and, on the continent, the nature and importanec of these first truths had been, at an earlier period, illustrated in a full and able manner by Father Buffier.

Various characters have been proposed, by which these primary and fundamental truths may be distinguished. One of those given by Father Buffier appears to be the best, and to be alone sufficient to identify them. It is, that their practical influence extends even to persons who affect to dispute their authority; in other words, that, in all the affairs of life, the most sceptical philosopher acts, as much as the mass of mankind, upon the absolute belief of these truths. Let a person of this description, for example, be contending very keenly, in regard to something which deeply concerns his interest or his comfort,—he would scarcely be satisfied by being told, that the thing about which he contends has no real existence, and that he who contends about it so eagerly is himself a nonentity, or, at best, nothing more than an idea. Let him be taking cognizance of an offence committed against

him ten years ago,—he never doubts that he is still the person against whom the offence was committed. Let him lay plans for future advantage or comfort, —it is done under a full conviction that he is still to continue the individual who may enjoy them. Has a building started up on his premises, which he did not expect to see,—he immediately asks, who ordered the masons, and would be very ill satisfied by being told, that the thing had appeared without any known cause, by a fortuitous combination of atoms. However much he may reason to the contrary, he shows no doubt, in his own practice, that every event must have an adequate cause. The same mode of reasoning will be seen to apply to the other principles which belong to the class under consideration,—namely, that those who argue against them act in all cases on a belief of their truth.

The distinction between a process of reasoning, and the act of the mind, in arriving at these fundamental and intuitive truths, is a principle of the utmost practical importance. For a chain of correct reasoning requires logical habits, and a certain cultivation of the mental powers ; and, consequently, it is confined to a comparatively small number of mankind. But the process here referred to is the spontaneous and immediate induction of the untutored mind, and the correct exercise of it requires only, that the mind shall not be debased by depravity, nor bewildered by the refinements of a false philosophy.

The truths which we derive from it, accordingly, do not concern the philosopher alone, but are of daily and essential importance to the whole mass of mankind. Let us take, for example, the principle referred to under the fifth head, namely, our intuitive conviction that every change or event must have an adequate cause. This is a principle of daily application, and one which is acted upon with absolute confidence in the ordinary affairs of life by all classes of men. By the immediate and unconscious exercise of it, we infer the skill of one workman from works indicating skill, and the vigour of another from works indicating strength. We infer from every work, not only a cause, but a cause which, both in degree and in kind, is exactly proportioned to the effect produced. From a chronometer, which varies only a second in a year, we infer exquisite skill in the artist; and, from the construction of the pyramids of Egypt, the united strength of a multitude of men. We never suppose for a moment, that the minute skill of the artist raised the pyramid, or that the united force of the multitude constructed the chronometer; still less, that these monuments of art started into their present condition without a cause. We infer with absolute certainty in both cases an adequate cause; that is, a cause, distinguished, in the one case, by design and mechanical power,—in the other, by design, adaptation, and exquisite skill.

The principle which is thus acted upon, in the ordinary affairs of life, with a conviction of infallible certainty, is precisely the same, by which, from the stupendous works of creation, we infer, by the most simple step of reasoning, the existence of a great first cause. This cause, also, we conclude to be a designing and intelligent mind, infinite in wisdom, and boundless in power; and, by a very slight and natural extension of the same principle, we arrive with equal certainty at the conviction, of this cause being the first,—not arising out of any thing preceding it, consequently self-existent and eternal. All this is not such a process of reasoning as requires logical habits, and admits of debate, deliberation, or doubt;—the metaphysician may bewilder himself in its very simplicity; but the uncontaminated mind finds its way to the conclusion with unerring certainty, and with a conviction, which is felt to be not only satisfactory, but irresistible.

When we proceed, from these first or intuitive articles of belief, to the farther investigation of truth in any department of knowledge, various mental processes are brought into operation; but, in regard to all of them, reason is our ultimate guide, in judging

whether they are performed in a legitimate manner, and upon principles calculated to lead to the discovery of truth. These processes may be chiefly referred to the following heads:

I. To make a careful collection of facts relating to the subject; and to abstain from deducing any conclusions till we have before us such a series as seems calculated to warrant them. The first operation of reason therefore is, to judge when we have a sufficient collection of facts for this purpose.

II. To separate from the mass those facts which are connected with it incidentally, and to retain those only which we have reason to consider as uniform and essential. In some sciences, this is accomplished by repeated and varied experiments; and in those departments which do not admit of this, it is done by cautious and extensive observation. Our object in both cases is, to ascertain how many of the circumstances observed, and what particular combinations of them uniformly accompany each other, or are really connected with the effects which are produced. In this careful clearing of our statement from all incidental combinations, consists that faithful observation of nature which forms the first step in every scientific investigation. It is opposed to two errors, both equally to be avoided, namely, leaving out of view, or not assigning an adequate va-

lue to, important and essential facts; and giving a place and an importance to those which are incidental and trivial. In every scientific investigation, this is a process of the utmost importance; and there is another nearly connected with it, namely, to judge of the authenticity of the facts. This also is a mental process of the utmost delicacy. In conducting it, there are two extremes from which the exercise of sound judgment ought equally to guard us, namely, receiving facts upon imperfect evidence, and rejecting those which have a sufficient title to credit; in other words, credulity and scepticism. Both these extremes are equally unworthy of a mind which is guided by sound reason.

III. To compare facts with each other so as to trace their resemblances, or to ascertain those characters or properties in which a certain number of facts or substances agree. We thus arrange them into classes, genera, and species.

IV. To compare facts or events with each other, so as to trace their relations and sequences; especially that relation of uniform sequence, on which is founded our notion of cause and effect. This delicate and most important process consists entirely in a patient observation of facts, and of their relation to each other. When, in a certain number of instances, we find two events following one another without any

exception, we come to consider the sequence as uniform, and call the one cause and the other effect; and when, in other instances, we are disappointed in finding such a succession, this confidence is shaken, unless we can discover a cause by which the sequence was interrupted. Reason, acting upon extensive observation, must here guide us,—on the one hand, to judge of the uniformity of the sequences, and, on the other, to account for apparent deviations.

V. To review an extensive collection of facts, so as to discover some general fact common to the whole. This is the process which we call generalizing, or the induction of a general principle. The result of it is the last and greatest object of human science, and that to which all the other steps are preliminary and subservient. An ordinary mind is satisfied with the observation of facts as they pass before it, and those obvious relations which obtrude themselves upon its notice; but the philosopher analyzes the phenomena, and thus discovers their more minute relations. His genius is distinguished above the industry of the mere observer of facts, when he thus traces principles of accordance among facts which, to the vulgar eye, appear remote and dissimilar. A remarkable example of this is familiar to every one. Between the fall of an apple from a tree and the motions of the heavenly bodies, a common mind would have been long ere it dis-

covered any kind of relation ; but, on such a relation, Newton founded those grand principles by which he brought to light the order and harmony of the universe. For it was this simple fact that first suggested to him the great principle of physical science, that matter attracts matter in the reciprocal ratio of their masses.

In a practical view, these processes may be referred to three heads, namely, collecting authentic facts,—tracing causation,—and deducing general principles. Here various mental operations are brought into action, especially attention, memory, conception, and abstraction ; but it is the province of reason to judge whether these are conducted in a legitimate manner, or, in other words, to distinguish truth from falsehood. It may therefore be important to keep in mind, what those circumstances are in which consist truth and falsehood, in reference to any department of knowledge.

I. In collecting facts, it is required, in the first place, that they shall be authentic; secondly, that the statement shall include a full and fair view of all the circumstances which ought to be taken into our investigation of the case; and thirdly, that it shall not include any facts which are not connected with the subject, or whose connexion is only incidental. When we have thus formed a collection of facts,

authentic, full, and essential, the statement, in as far as relates to the facts, constitutes truth. When any of the facts are not authentic; when important facts are left out of the statement, or misrepresented; or when facts are taken into it, which, though true, have no real relation to the subject;—this constitutes fallacy or falsehood.

II. In considering two events as connected in the manner of cause and effect;—when this relation is deduced from a full and extensive observation of the sequence being uniform,—this is truth. When it is assumed upon inadequate grounds, that is, from the observation of a connexion which is only incidental or limited,—this is either falsehood or hypothesis; for the relation may be assumed upon grounds which, though not actually false, are yet not sufficient to establish it as true; namely, on observation which is too limited in extent. This is conjecture or hypothesis; and it is, in some cases, a legitimate process, provided it be used only as a guide for farther observation, and be not received as true, until such observation shall have been sufficient to confirm it.

III. In deducing from a large collection of facts, a general fact or general principle;—when this induction is made from a full examination of all the individual cases to which the general fact is meant to

apply, and actually does apply to them all,—this is truth. When it is deduced from a small number of observations, and extended to others to which it does not apply,—this is falsehood. As in the former case, however, a general principle may be deduced hypothetically, or by conjecture; that is, it may be assumed as general so far as we at present know. This process is often legitimate and useful as a guide in farther inquiry, if it be employed for this purpose only, and the result be not received as truth until it be established by sufficient observation. A great and not unfrequent error is, that, when such hypothetical principles are proposed in a confident manner, they are very often received as true; and the consequence is, that a degree of observation is required for exposing their fallacy, perhaps as extensive as, if properly employed, might have been sufficient to discover the truth. Those who are acquainted with the history of medical doctrines will be best able to judge of the accuracy of this observation, and to estimate the extensive influence which this error has had in retarding the progress of medical science.

The proper rules to be observed, in deducing a general principle, are therefore opposed, in the first place, to the error of hasty generalizing, or deducing such a principle from a limited number of facts. They are farther opposed to another error, prevalent in the hypothetical systems of the old philosophy, by which phenomena were referred to principles al-

together fictitious and imaginary, or, in other words, which could not be shown to be facts. In opposition to both these errors, the great rule of induction in modern science is, that the principle which is assumed as general shall be itself a fact, and that the fact shall be universal. Thus, what we call the law of gravitation, is primarily nothing more than the fact, that bodies fall to the earth: and that this is true of all bodies, without a single exception. Of the cause of this fact, or the hidden principle on which it depends, we know nothing; and all the investigations of Newton were carried on independently even of the attempt to discover it. "When Newton," says Mr. Stewart, "showed that the same law of gravity extends to the celestial spaces, and that the power by which the moon and planets are retained in their orbits, is precisely similar in its effects to that which is manifested in the fall of a stone; he left the efficient cause of gravity as much in the dark as ever, and only generalized still farther the conclusions of his predecessors."

False investigation may be briefly referred to three heads,—fallacies in facts,—false induction,—and false reasoning.

I. Fallacies in Facts. A statement of facts is fallacious, when any of the alleged facts are not true, —when it includes facts not relating to the subject,

—and when important facts are omitted. This last error is most frequently exemplified in those cases in which facts are collected on one side of a question only, or in support of a particular doctrine. To the same class we may likewise add those instances in which statements are received as facts, which are not facts but opinions.

II. False Induction includes false causation, and false generalization. False causation is, when two events are considered as cause and effect without sufficient reason, and which are, in fact, only incidentally combined:—when events are considered as cause and effect which are only joint effects of a common cause: and when, of two events really connected as cause and effect, we mistake the order of the sequence, considering that as the cause which is really the effect, and that as the effect which is really the cause. The error of false causation is most apt to occur in those sciences in which there is peculiar difficulty in tracing effects to their true causes, and causes to their true effects. These, as formerly mentioned, are exemplified by medicine and political economy. A physician, for example, ascribes the cure of a patient to a remedy which he has taken, though it perhaps had no influence on his recovery; and a political declaimer refers some circumstance of national distress or commercial embarrassment to certain public measures, which hap-

pened to correspond in time, but were in fact entirely unconnected. False generalization, again, as was lately stated, includes general principles which are deduced from a limited number of facts; and hypotheses which canot be shown to be facts, but are entirely fictitious and imaginary.

III. False Reasoning. This consists either,—in applying to the explanation of facts, principles which are unsound,—in applying sound principles to facts which have no relation to them,—or in deducing conclusions which do not follow from these facts and principles.

Reasoning is usually divided into two parts, which have been called the intuitive and the discursive. Intuitive reasoning, or intuitive judgment, is when the truth of a proposition is perceived whenever it is announced. This applies to axioms or self-evident truths,—and to first truths or fundamental articles of belief, formerly referred to, which rest upon the absolute conviction of the whole mass of mankind. In discursive reasoning, again, some of these axioms or first truths are applied to particular facts, so as to deduce from the connexion new conclusions. Thus, when we say that "every event must have an adequate cause," we state a principle of intuitive judgment. When we then collect from the phenomena of nature, various examples of adaptation and design,

and, applying that intuitive principle to these facts, arrive at the conclusion that the universe is the work of an intelligent and designing first cause,—this is discursive reasoning. The new principle or conclusion thus deduced may be applied in a similar manner to the deduction of farther conclusions, and so on through what we call a chain of reasoning. Any particular piece of reasoning, then, may generally be resolved into the following elements.

1. Certain principles or propositions which are stated either as axioms, as first truths, or as deductions from some former process of reasoning.

2. Certain facts or relations of facts, derived either from observation or testimony, which are stated as true, and to which the principles are to be in some manner applied.

3. Certain new conclusions deduced from the application of the principles to the facts.

In examining the validity of such a process, we have not only to attend to the correctness of the principles and the authenticity of the alleged facts, but likewise to inquire whether the facts are of that class to which the principles are legitimately applicable; for the principles may be true, and the facts authentic, and yet the reasoning may be unsound, from the principles being applied to facts to which they have no relation.

This method of examining, separately, the elements of an argument, appears to correspond with

the ancient syllogism; and this, accordingly, when divested of its systematic shape, is the mental process which we perform, whenever we either state, or examine any piece of reasoning. If I say, for example, "the greatest kings are mortal, for they are but men;" I appear to state a very simple proposition; but it is in fact a process of reasoning which involves all the elements of the syllogism; namely,

1. The general fact or proposition, that all men are mortal.

2. The fact referable to the class of facts which are included under this proposition,—that kings are men.

3. The deduction from this connexion, that kings are mortal.

For the validity and efficacy of such a process, two things are necessary:

1. That the general proposition which forms the first part of the statement, or, in logical language, the major proposition, be absolutely and universally true, or true without exception in regard to facts of a certain class,—and be admitted as such by those to whom the reasoning is addressed.

2. That the fact referred to it, or the minor proposition, be admitted or proved to be one of that class of facts which are included under the general proposition.

The conclusion then follows by a very simple pro-

cess. If either of the two former propositions be deficient or untrue, the argument is unsound. Thus, if I had varied the statement as follows,—" Angels, like other human beings, are mortal;"—there is a fallacy which, when put into the syllogistic form, is immediately apparent; thus,

All human beings are mortal,
Angels are human beings;
Therefore, angels are mortal.

The general or major proposition here is true; but the minor is not one of the class of facts which are included under it; therefore the conclusion is false. If I had said again, " Angels, like other created beings, are mortal;" the fallacy is equally apparent, though from a different source; thus,

All created beings are mortal,
Angels are created beings;
Therefore, angels are mortal.

Here the minor proposition is true, or is a fact included under the first; but the first, or major, is not true, for we have no ground to believe that all created beings are mortal. On the other hand, when a general fact is assumed as true of a certain class of cases, we must not assume the converse as true of those which are not included in the class; thus, from the proposition, that all human beings are mor-

tal, we are not entitled to infer that angels, who are not human beings, are immortal. Whether this conclusion be true or not, the argument is false; because the conclusion does not arise out of the premises;—for, from the admitted general fact, that human beings are mortal, it does not follow, that all who are not human beings are not mortal. Yet this will be found a mode of fallacious reasoning of very frequent occurrence. The rule to be kept in mind for avoiding such fallacies is,—that a general truth, which applies invariably to a certain class, may be applied to any individual which can be shown to be included in that class:—but that we are not entitled to extend it to any which cannot be shown to belong to the class;—and that we are not to assume the reverse to be true of those which do not belong to it. On the other hand, we are not to assume a property as belonging to a class, because we have ascertained it to belong to a certain number of individuals. This error comes under another part of our subject, and has been already alluded to under the head of false generalization. The syllogism, therefore, cannot properly be considered an engine for the discovery of truth, but rather for enabling us to judge of the application of, and deductions from, truths previously ascertained. For, before we can construct such a process as constitutes the syllogism, we require to have premised that most important process of investigation, by which a fact is ascertained

to be general in regard to all the individuals of a class,—and likewise, that certain individuals specified in the argument belong to this class. Thus the syllogism is nothing more than that process of mind which we exercise every time when we examine the validity of an argument, though we may not always put it into this systematic form. And yet there may often be advantage in doing so, as it enables us to examine the elements of the argument more distinctly apart. It is related of an eminent English barrister, afterwards a distinguished judge, that, on one occasion, he was completely puzzled by an argument adduced by his opponent in an important case, and that he did not detect the fallacy, till he went home and put it into the form of a syllogism. Though a syllogism, therefore, may not lead to any discovery of truth, it may be an important instrument in the detection of sophistry, by directing the attention, distinctly and separately, to the various elements which compose a statement or an argument, and enabling us to detect the part in which the sophistry is involved.

In every process of reasoning there are two distinct objects of attention, or circumstances to be examined, before we admit the validity of the argument. These are,—the premises or data which the reasoner assumes, and which he expects us to admit as true;—and the conclusions which he pro-

poses to found upon these premises. The premises again consist of three parts, which we require to examine separately and rigidly. These are,

1. Certain statements which he brings forward as facts, and which he expects to be admitted as such.

2. Certain principles or propositions which he assumes as first truths, or articles of belief universally admitted.

3. Certain other propositions which he refers to, as deductions from former processes of investigation, or processes of reasoning.

If the statements referable to these three heads are admitted as true, the argument proceeds, and we have then only to judge of the validity or correctness of his farther deductions. If they are not at once admitted, the argument cannot proceed till we are satisfied on these preliminary points. If we do not admit his facts, we require him to go back to the evidence on which they rest. If we do not admit the general propositions which he assumes, we require the processes of reasoning or investigation on which these are founded. When we are at last agreed upon these premises, we proceed to judge of the conclusions which he proposes to deduce from them.

The circumstances, now referred to, may be considered as the essential parts of a process of reasoning, in a logical view; but there is another point

which we require to keep carefully in mind in examining such a process, and that is, the use of terms. Much of the confusion and perplexity in reasoning consists in the ambiguity of the terms; this is referable to three heads, namely: 1. Terms of a vague and indefinite character, the precise import of which has not been defined. 2. Terms employed in a sense, in some respect different from their common and recognised acceptation. 3. Varying the import of a term, so as to use it in different meanings in different parts of the same argument; or employing it at different times, in different degrees of comprehension and extension.

In examining the validity of a process of reasoning, then, the mental operation which we ought to perform may be guided by the following considerations:

1. What statements does the author propose as matters of fact;—are these authentic; are they all really bearing upon, or connected with, the subject; do they comprise a full and fair view of all the facts which ought to be brought forward in reference to the inquiry; or have we reason to suspect that any of them have been disguised or modified,—that important facts have been omitted or kept out of view,—that the author has not had sufficient opportunities of acquiring the facts which he ought to have

been possessed of,—or that he has been collecting facts on one side of a question, or in support of a particular opinion?

2. What propositions are assumed, either as first or intuitive truths, or as deductions arising out of former processes of investigation; and are we satisfied that these are all legitimate and correct?—In particular, does he make any statement in regard to two or more events being connected as cause and effect; and is this connexion assumed on sufficient grounds:—does he assume any general principle as applicable to a certain class of facts; is this principle in itself a fact, and does it really apply to all the cases which he means to include under it; have we any reason to believe that it has been deduced from an insufficient number of facts,—or is it a mere fictitious hypothesis, founded upon a principle which cannot be proved to have a real existence?

3. Do these assumed principles and facts really belong to the same subject,—or, in other words, do the facts belong to that class to which the principles apply?

4. Are the leading terms which he employs fully and distinctly defined as to their meaning; does he employ them in their common and recognised acceptation; and does he uniformly use them in the same sense; or does he seem to attach different

meanings to the same term in different parts of his argument?

5. What are the new conclusions which he deduces from the whole view of the subject; are these correct and valid; and do they really follow from the premises laid down in the previous parts of his argument? For, on this head it is always to be kept in mind, that a conclusion may be true, while it does not follow from the argument which has been brought to prove it: in such a case, the argument is unsound.

Much of the confusion, fallacy, and sophistry of reasoning arises from these points not being sufficiently attended to, and distinctly and rigidly investigated. An argument may appear fair and consecutive, but, when we rigidly examine it, we may find, that the reasoner has, in his premises, contrived to introduce some statement, which is not true in point of fact, or some bold general position, which is not correct, or not proved; or that he has left out some fact, or some principle, which ought to have been brought forward in a prominent manner, as closely connected with the inquiry. Hence the necessity for keeping constantly in view the various sources of fallacy to which every process of reasoning is liable, and for examining the elements rigidly and separately, before we admit the conclusion.

A process of reasoning is to be distinguished from a process of investigation; and both may be illustrated in the following manner. All reasoning must be founded upon facts, and the ascertained relations of these facts to each other. The nature of these relations has already been mentioned, as referable to the various heads of resemblance, cause, effect, &c. The statement of an ascertained relation of two facts to each other, is called a proposition, such as—that A is equal to B;—that C has a close resemblance to D;—that E is the cause of F, &c. These statements, propositions, or ascertained relations are discovered by processes of investigation. In a process of reasoning, again, we take a certain number of such propositions or ascertained relations, and deduce from them certain other truths or relations, arising out of the mutual connexion of some of these propositions to each other. Thus, if I state as propositions ascertained by processes of investigation, that A is equal to B,—and that B is equal to C;—I immediately decide by a single step of reasoning, that A is equal to C, in consequence of the mutual relation which both A and C have to B. Such a process may be rendered more complicated in two ways:

1. By the number of such ascertained relations which we require to bear in mind and compare with each other, before we arrive at the conclusion. Thus, the relation that A is equal to E, might rest on such

a series of relations as the following;—A is equal to B; B is the double of C; C is the half of D; D is equal to E; therefore A is equal to E.

2. By propositions, which are the conclusions of one or more steps in a process, becoming the premises in a subsequent step. Thus,—I may take as one process; A is equal to B, and B is equal to C; therefore A is equal to C;—and, as a distinct process,—C is equal to D, and D is equal to E; therefore C is equal to E. The conclusions from these two processes I then take as the premises in a third process,—thus:—it has been proved that A is equal to C, and that C is equal to E; therefore A is equal to E.

In examining the validity of such processes, there are two circumstances or objects of inquiry which we ought to keep constantly in view. (1.) Have we confidence in the accuracy of the alleged facts, and ascertained relations which form the premises:—Can we rely on the process of investigation by which it is said to have been ascertained that A is equal to B, and that B is equal to C, &c.? (2.) Are the various propositions in the series so related as to bring out a new truth or new relation? For it is to be kept in mind, that a series of propositions may all be true, and yet lead to nothing,—such propositions, for example, as that A is equal to B,—C is equal to D,—E is equal to F. There is here no mutual relation, and no new truth arises out of the series. But when

I say,—A is equal to B, and B is equal to C, a new truth is immediately disclosed, in consequence of the relation which both A and C have to B; namely, that A is equal to C.

Inventive genius, in regard to processes of reasoning, consists in finding out relations or propositions which are thus capable of disclosing new truths or new relations; and in placing them in that order which is calculated to show how these new relations arise out of them. This is the exercise of a reflecting mind; and there may be much acquired knowledge, that is, many facts accumulated by memory alone, without any degree of this exercise or habit of reflection. But both are required for forming a well-cultivated mind;—the memory must be stored with information, that is, ascertained facts, and ascertained relations; and the power of reflection must be habituated to discover new truths or new relations, by a comparison of these facts and ascertained relations with each other. For, the discovery of new truths may consist either of new facts, or of new relations among facts previously known. Thus, it might happen, that we had long been familiar with two facts, without being aware that they had any particular connexion. If we were then to ascertain, that the one of these was the cause of the other, it would be a real and important discovery of a new truth, though it would consist only of a new relation between facts which had long been known to us.

A process of reasoning, as we have seen, consists of two parts, namely, the premises and the conclusion deduced from them. If the premises be admitted as true, the remaining part of the process becomes comparatively simple. But it often happens, that a reasoner must begin by establishing his premises. This is most remarkably exemplified in what we call a chain of reasoning, consisting of numerous distinct arguments or steps, so arranged that the conclusion from one step becomes an essential part of the premises in the next; and this may be continued through a long series. The process then becomes much more complicated, and, in judging of the accuracy of the reasoning, we require to examine carefully every part of it as we proceed, to guard against the introduction of fallacy. Without this attention it may often happen, that the more advanced parts of an argument may appear fair and consecutive, while a fallacy has been allowed to creep into some part of it, which, in fact, vitiates the whole. In the preceding observations, we have endeavoured to point out some of the leading cautions to be observed in this respect, especially in regard to the admission of facts, the assumption of causation, and the deduction of general principles; and also the sources of fallacy to be kept in view in conducting these processes. But there is another class of fallacies, which, though less immediately connected with our inquiries, it may be right briefly to point out in relation to this subject. These

are what may be called logical fallacies, or perversions of reasoning. In regard to them, as well as to those formerly mentioned, it is to be kept in mind, that, however obvious they may appear when simply stated, this is by no means the case when they are skilfully involved in a long process of reasoning. The fallacies of this class may be chiefly referred to the following heads:

I. When a principle is assumed, which in fact, amounts to the thing to be proved; slightly disguised, perhaps, by some variation in the terms. This is commonly called Petitio Principii, or begging the question. When simply stated, it appears a fallacy not likely to be admitted; but will be found one of very frequent occurrence. It is indeed remarkable to observe the facility with which a dogma, when it has been boldly and confidently stated, is often admitted by numerous readers, without a single inquiry into the evidence on which it is founded.

II. When a principle is assumed without proof; when this is employed to prove something else; and this is again applied, in some way, in support of the first-assumed principle. This is called reasoning in a circle; and the difficulty of detecting it is often in proportion to the extent of the circle, or the number of principles which are thus made to hang upon one another.

III. A frequent source of fallacy is, when a reasoner assumes a principle, and then launches out into various illustrations and analogies, which are artfully made to bear the appearance of proofs. The cautions to be kept in mind in such a case are, that the illustrations may be useful, and the analogies may be of importance, provided the principle has been proved; but that, if it has not been proved, the illustrations must go for nothing, and even analogies seldom have any weight which can be considered as of the nature of evidence. Fallacies of this class are most apt to occur in the declamations of public speakers; and, when they are set off with all the powers of eloquence, it is often difficult to detect them. The questions which the hearer should propose to himself in such cases, are,—does this really contain any proof bearing upon the subject, or is it mere illustration and analogy, in itself proving nothing? If so, has the reasoner previously established his principle; or has he assumed it, and trusted to these analogies as his proofs?

IV. A fallacy somewhat analogous to the preceding, consists in arguing for or against a doctrine, on the ground of its supposed tendency, leaving out of view the primary question of its truth. Thus, a speculator in theology will contend, in regard to a doctrine which he opposes, that it is derogatory to the character of the Deity; and, respecting another

which he brings forward, that it represents the Deity in an aspect more accordant with the benignity of his character. The previous question in all such cases, is,—not what is most accordant with our notions respecting the divine character,—but what is truth.

V. When a principle which is true of one case, or one class of cases, is extended by analogy to others, which differ in some important particulars. The caution to be observed here is, to inquire strictly whether the cases are analogous, or whether there exists any difference which makes the principle not applicable. We have formerly alluded to a remarkable example of this fallacy, in notions relating to the properties of matter being applied to mind, without attention to the fact, that the cases are so distinct as to have nothing in common. An example somewhat analogous is found in Mr. Hume's objection to miracles, that they are violations of the established order of nature. The cases, we have seen, are not analogous; for miracles do not refer to the common course of nature, but to the operation of an agency altogether new and peculiar. Arguments founded upon analogy, therefore, require to be used with the utmost caution, when they are employed directly for the discovery or the establishment of truth. But there is another purpose to which they may be applied, with much greater freedom,—namely, for

repelling objections. Thus, if we find a person bringing objections against a particular doctrine, it is a sound and valid mode of reasoning to contend, that he receives doctrines which rest upon the same kind of evidence; or that similar objections might be urged, with equal force, against truths which it is impossible to call in question. It is in this manner that the argument from analogy is employed in the valuable work of Bishop Butler. He does not derive from the analogy of nature any direct argument in support of natural or revealed religion; but shows that many of the objections, which are urged against the truths of religion, might be brought against circumstances in the economy and course of nature which are known and undoubted facts.

VI. A fallacy the reverse of the former is used by sophistical writers; namely, when two cases are strictly analogous, they endeavour to prove that they are not so, by pointing out trivial differences, not calculated in any degree to weaken the force of the analogy.

VII. When a true general principle is made to apply exclusively to one fact or one class of facts, while it is equally true of various others. This is called, in logical language, the non-distribution of the middle term. In an example given by logical writers, one is supposed to maintain that corn is

necessary for life, because food is necessary for life, and corn is food. It is true that food is necessary for life; but this does not apply to any one particular kind of food; it means only, that food of some kind or other is so. When simply stated, the fallacy of such a position is at once obvious, but it may be introduced into an argument in such a manner as not to be so immediately detected.

VIII. When an acknowledged proposition is inverted, and the converse assumed to be equally true. We may say, for example, that a badly governed country must be distressed; but we are not entitled to assume that every distressed country is badly governed; for there may be many other sources of national distress. I may say,—"all wise men live temperately;" but it does not follow that every man who lives temperately is a wise man. This fallacy was formerly referred to, under the syllogism. It is, at the same time, to be kept in mind, that some propositions do admit of being inverted, and still remain equally true. This holds most remarkably of propositions which are universally negative, as in an example given by writers on logic.—"No ruminating animal is a beast of prey." It follows, as equally true, that no beast of prey ruminates. But if I were to vary the proposition by saying, "all animals which do not ruminate are beasts of prey," this would be

obviously false,—and does not arise out of the former statement.

IX. A frequent source of fallacy, among sophistical writers, consists in boldly applying a character to a class of facts, in regard to which it carries a general aspect of truth, without attention to important distinctions, by which the statement requires to be modified. Thus, it has been objected to our belief of the miracles of the sacred writings, that they rest upon the evidence of testimony, and that testimony is fallacious. Now, when we speak of testimony in general, we may say, with an appearance of truth, that it is fallacious; but, in point of fact, testimony is to be referred to various species; and, though a large proportion of these may be fallacious, there is a species of testimony on which we rely with absolute confidence;—that is, we feel it to be as improbable that this kind of testimony should deceive us, as that we should be disappointed in our expectation of the uniformity of nature. The kind of sophism now referred to, seems to correspond with that which logical writers have named the fallacy of division. It consists in applying to facts in their separate state, what only belongs to them collectively. The converse of it is the fallacy of composition. It consists in applying to the facts collectively, what belongs only to them, or to some of them, in their se-

parate state ;—as if one were to show that a certain kind of testimony is absolutely to be relied on, and thence were to contend that testimony in general is worthy of absolute confidence.

X. A frequent fallacy consists in first overturning an unsound argument, and thence reasoning against the doctrine which this argument was meant to support. This is the part of a mere casuist, not of a sincere inquirer after truth ; for it by no means follows that a doctrine is false, because unsound arguments have been adduced in support of it. We have formerly alluded to some remarkable examples of this fallacy, especially in regard to those important principles, commonly called first truths ; which, we have seen, admit of no processes of reasoning, and, consequently, are in no degree affected by arguments exposing the fallacy of such processes. We learn from this, on the other hand, the importance of avoiding all weak and inconclusive arguments, or doubtful statements ; for, independently of the opening which they give for sophistical objections, it is obvious, that, on other grounds, the reasoning is only encumbered by them. It is the part of the casuist to rest the weight of his objections on such weak points, leaving out of view those which he cannot contend with. It may even happen that a conclusion is true, though the whole reasoning may have been weak, unsound, and irrelevant. The casuist, of course, in such a

case, attacks the reasoning and not the conclusion. On the other hand, there may be much in an argument which is true, or which may be conceded; while the most important part of it is untrue, and the conclusion false. An inexperienced reasoner, in such a case, thinks it necessary to combat every point, and thus exposes himself to sound replies from his adversary, on subjects which are of no importance. A skilful reasoner concedes or passes over all such positions, and rests his attack on those in which the fallacy is really involved. An example illustrative of this subject is familiar to those who are acquainted with the controversy respecting our idea of cause and effect. Mr. Hume stated in a clear manner the doctrine, that this idea is derived entirely from our experience of a uniform sequence of two events; and founded upon this an argument against our belief in a great first cause. This led to a controversy respecting the original doctrine itself; and it is not many years since it was contended by respectable individuals, that it is nothing less than the essence of atheism to maintain, that our notion of cause and effect originates in the observation of a uniform sequence. It is now, perhaps, universally admitted that this doctrine is correct,—and that the sophism of Mr. Hume consisted in deducing from it conclusions which it in no degree warrants. This important distinction we formerly alluded to,—namely, that our idea of cause and effect, in regard to any two

individual events, is totally distinct from our intuitive impression of causation, or our absolute conviction that every event must have an adequate cause.

XI. A sophism, somewhat connected with the former, consists in disproving a doctrine, and on that account assuming the opposite doctrine to be true. It may be true; but its truth does not depend upon the falsehood of that which is opposed to it; yet this will be found a principle of not unfrequent occurrence in unsound reasonings.

XII. Fallacies are often introduced, in what may be termed an oblique manner, or, as if upon a generally admitted authority. The effect of this is to take off the appearance of the statement being made directly by the author, and resting upon his authority, by which we might be led to examine its truth. For this purpose it is put, perhaps, in the form of a question; or is introduced by such expressions as the following:—"it is a remarkable fact,"—"it is somewhat singular,"—"it has been argued with much justice,"—"it will be generally admitted," &c.

XIII. Fallacy may arise from leaving the main subject of discussion, and arguing upon points which have but a secondary relation to it. This is one of the resources of the casuist when he finds himself in the worst of the argument. Nearly allied to this

is the art of skilfully dropping part of a statement, when the reasoner finds he cannot support it, and going on boldly with the remainder as if he still maintained the whole.

XIV. Much of the fallacy and ambiguity of processes of reasoning depends entirely, as formerly stated, on the use of terms. This may consist in two contending parties using the same word in different meanings, without defining what their meanings are;—in one or both using terms in a sense different from their commonly recognised acceptation; —or in using them in one sense in one part of the argument, and in another in a different part of it. Such disputes, accordingly, are often interminable; and this mode of disputation is one of the great resources of the casuist, or of him who argues for victory, not for truth. The remedy is, that every reasoner shall be required clearly to define the terms which he employs; and that, in every controversy, certain premises or preliminaries shall be fixed, in which the parties are agreed. The ambiguity of terms is in fact so extensive a source of fallacy, that scarcely any sophistical argument will be found free from it; as, in almost every language, the same term is used with great diversity of meanings. Let us take, for example, the term Faith. It means— a mere system of opinions,—confidence in testimony, —reliance on the integrity, fidelity, and stability of

character of other beings,—an act of the understanding in regard to abstract truth presented to it,—and a mental condition by which truths, of another description, exert a uniform influence over the moral feelings, the will, and the whole character. In the controversies which have arisen out of this word, it will probably be found, that these various meanings have not been sufficiently distinguished from each other. A celebrated passage in the Spirit of Laws has been justly referred to, as a remarkable example of the same kind of sophism. "The Deity," says Montesquieu, "has his laws; the material world—its laws; intelligences superior to man—their laws; the brutes—their laws; man—his laws." In this short passage, the term *laws* is employed, probably, in four senses, remarkably different.

XV. There are various other sources of fallacy, consisting chiefly in the use of arguments which cannot be admitted as relevant in regard to the process of reasoning, though they may carry a certain weight in reference to the individuals concerned. Among these may be reckoned, appeals to high authorities, to popular prejudices, or to the passions of the multitude; and what is called the *argumentum ad hominem*. If a person, for example, be arguing in support of a particular rule of conduct, we may retort upon him, that his own conduct, in certain instances, was in direct opposition to it. This may

be very true in regard to the individual, but can have no influence in the decision of the question.

XVI. One of the most common sources of fallacy consists of distorted views and partial statements,—such as, facts disguised, modified, or collected on one side of a question;—or arguments and authorities adduced in support of particular opinions, leaving out of view those which tend to different conclusions. Misstatement, in one form or another, may, indeed, be considered as a most fruitful source of controversy; and, amid the contests of rival disputants, the chief difficulty which meets the candid inquirer after truth, is to have the subject presented to his mind without distortion. Hence the importance, in every inquiry, of suspending our judgment,—and of patiently devoting ourselves to clear the subject from all imperfect views and partial statements. Without the most anxious attention to this rule, a statement may appear satisfactory, and a deduction legitimate, which are in fact leading us widely astray from the truth.

After every possible care in any process of reasoning, we may still find, in many cases, a degree of doubt, and even certain varieties of opinion in regard to the import and bearing of the argument. This arises partly from actual differences in the power of judging, or what we call, in common language, vi-

gour of mind; and partly from differences in attention, or in the habit of applying the judgment closely to the elements of an inquiry. Hence the varieties of opinion that may be held by different individuals on the same subject, and with the same facts before them; and the degree of uncertainty which attends various processes of reasoning. There is one species of reasoning which is free from all this kind of uncertainty, namely, the mathematical; and the superiority of it depends upon the following circumstances.

1. Nothing is taken for granted or depends upon mere authority; and, consequently, there is no room for fallacy or doubt in regard to the premises on which the reasoning is founded. No examination of facts is required in any degree analogous to that which is necessary in physical science. The mathematician proceeds upon simple relations of quantity and space, which can be correctly ascertained, and can be cleared from all ambiguity, and from every thing not connected with the subject.

2. In the farther progress of a mathematical argument, if we have any doubt of a proposition which is assumed as the result of a former process, we have only to turn to the demonstration of it, and be immediately satisfied. Thus, if any step of a process be founded upon the principle, that all the angles of a triangle are equal to two right angles, or that the square of the hypotenuse is equal to the sum of the squares of the two sides, should we have any doubt

of the truth of these conclusions, the demonstration of them is before us. But, if an argument be founded on the principle, that the heavenly bodies attract one another with a force, which is directly as their quantity of matter, and inversely as the square of their distance, this great principle must be received on the authority of the eminent men by whom it was ascertained, the mass of mankind having neither the power nor the means of verifying it.

3. All the terms are fully and distinctly defined, and there is no room for obscurity or ambiguity in regard to them.

4. The various steps in a process of mathematical reasoning follow each other so closely and consecutively, as to carry a constant conviction of absolute certainty; and, provided we are in possession of the necessary premises, each single step is short, and the result obvious.

5. The proper objects of mathematical reasoning are quantity and its relations; and these are capable of being defined and measured with a precision, of which the objects of other kinds of reasoning are entirely unsusceptible. It is, indeed, always to be kept in mind, that mathematical reasoning is only applicable to subjects which can be defined and measured in this manner, and that all attempts to extend it to subjects of other kinds have led to the greatest absurdities.

Notwithstanding the high degree of precision which thus distinguishes mathematical reasoning, the study of mathematics does not, as is commonly supposed, necessarily lead to precision in other species of reasoning, and still less to correct investigation in physical or mental science. The explanation that is given of this fact seems to be satisfactory. The mathematician argues certain conclusions from certain relations of quantity and space, which are ascertained with absolute precision; and these premises are so clearly defined, and so free from all extraneous matter, that their truth is obvious, or is ascertained without difficulty. By being conversant with truths of this nature, he does not learn that kind of caution and severe examination, which are required in other sciences,—for enabling us to judge whether the statements on which we proceed are true, and whether they include the whole truth which ought to enter into the investigation. He thus acquires a habit of too great facility in the admission of data or premises, which is the part of every investigation which the physical or mental inquirer scrutinizes with the most anxious care,—and too great confidence in the mere force of reasoning, without adequate attention to the previous processes of investigation on which all reasoning must be founded. It has been, accordingly, remarked, by Mr. Stewart, and other accurate observers of intellectual character, that mathematicians are apt to be exceedingly credulous, in regard both

to opinions and to matters of testimony; while, on the other hand, persons, who are chiefly conversant with the uncertain sciences, acquire a kind of scepticism in regard to statements, which is apt to lead them into the opposite error. These observations, of course, apply only to what we may call a mere mathematician,—a character which is now, probably, rare, since the close connexion was established between the mathematical and physical sciences in the philosophy of Newton.

In the various steps constituting a process of reasoning, or a process of investigation, in any department of knowledge, our guide is reason or judgment. Its peculiar province is to give to each fact, or each principle, a proper place and due influence in the inquiry, and to trace the real and true tendency of it in the conclusion. It is, of course, assisted by other mental operations, as memory, conception, and abstraction, but especially by attention,—or a deliberate and careful application of the mind to each fact and each consideration which ought to have a place in the inquiry. This is entirely a voluntary exercise of the mind, strengthened and made easy by habit or frequent exercise, and weakened or impaired by disuse or misapplication; and there is, perhaps, nothing which has a greater influence in the formation of character, or in determining the place which a man is to assume among his fellow-men.

This sound exercise of judgment is widely distinct from the art of ingenious disputation. The object of the former is to weigh, fully and candidly, all the relations of things, and to give to each fact its proper weight in the inquiry: the aim of the latter is to seize, with rapidity, particular relations, and to find facts bearing upon a particular view of a subject. This habit, when much exercised, tends rather to withdraw the attention from the cultivation of the former. Thus, it has not unfrequently happened, that an ingenious pleader has made a bad judge; and that acute and powerful disputants have perplexed themselves by their own subtleties, till they have ended by doubting of every thing. The same observation applies to controversial writing; and hence the hesitation with which we receive the arguments and statements of a keen controvertist, and the necessity for hearing both sides. In making use of this caution, we may not accuse the reasoner of any unsound arguments or false statements. We only charge him with acting the part of an ingenious pleader, who brings forward the statements and arguments calculated to favour one side of a question, and leaves those of the opposite side out of view. The candid inquirer, like the just judge, considers both sides, and endeavours, according to the best of his judgment, to decide between them. To the same principle we trace the suspicion, with which we receive the statements of an author, who first brings

forward his doctrine, and then proceeds to collect facts in support of it. To a similar process we may ascribe the paradoxical opinions, into which sophistical writers have brought themselves, often on subjects of the highest importance; and which they have continued to advocate, with much appearance of an honest conviction of their truth. It would be unjust to suppose that these writers have always intended to impose upon others; they have very often imposed upon themselves; but they have done so by their own voluntary act, in a misapplication of their reasoning powers. They have directed their attention, exclusively or chiefly, to one view of a subject, and have neglected to direct it, with the same care, to the facts and considerations which tend to support the opposite conclusions.

In regard to the sound exercise of judgment, it is farther to be remarked, that it may exist without the habit of observing the various steps in the mental process which is connected with it. Thus we find men of that character, to which we give the name of strong sound sense, who form just and comprehensive conclusions on a subject, without being able to explain to others the chain of thought by which they arrived at them; and who, when they attempt to do so, are apt to bewilder themselves, and fall into absurdities. Such persons, accordingly, are adapted for situations requiring both soundness of judgment and promptitude in action; but they make a bad

figure in public speaking or reasoning. They are, indeed, possessed of a faculty more valuable than any thing that metaphysics or logic can furnish; but a due attention to these sciences might increase their usefulness, by enabling them to communicate to others the mental process which led to their decisions. A person of this description, according to a well-known anecdote, when appointed to a judicial situation in one of the colonies, received from an eminent judge the advice, to trust to his own good sense in forming his opinions, but never to attempt to state the grounds of them. "The judgment," said he, "will probably be right, the argument will infallibly be wrong." When this strong sound judgment, and correct logical habits, are united in the same individual, they form the character of one who arrives at true conclusions on any subject to which his attention is directed, and, at the same time, carries others along with him to a full conviction of their truth.

We have, then, every reason to believe, that though there may be original differences in the power of judgment, the chief source of the actual varieties in this important function is rather to be found in its culture and regulation. On this subject there are various considerations of the highest interest, claiming the attention of those who wish to have the understanding trained to the investigation of truth. These

are chiefly referable to two heads; namely, the manner in which the judgment suffers from deficient culture; and the manner in which it is distorted by want of due regulation.

I. The judgment is impaired by deficient culture. This is exemplified in that listless and indifferent habit of the mind, in which there is no exercise of correct thinking, or of a close and continued application of the attention to subjects of real importance. The mind is engrossed by frivolities and trifles, or bewildered by the wild play of the imagination; and, in regard to opinions on the most important subjects, it either feels a total indifference, or receives them from others without the exertion of thinking or examining for itself. The individuals, who are thus affected, either become the dupes of sophistical opinions imposed upon them by other men, or spend their lives in frivolous and unworthy pursuits, with a total incapacity for all important inquiries. A slight degree removed from this condition of mind is another, in which opinions are formed on slight and partial examination, perhaps from viewing one side of a question, or, at least, without a full and candid direction of the attention to all the facts which ought to be taken into the inquiry. Both these conditions of mind may perhaps originate partly in constitutional peculiarities or erroneous education; but they are fixed and increased by habit and indulgence,

until, after a certain time, they probably become irremediable. They can be corrected only by a diligent cultivation of the important habit, which, in common language, we call sound and correct thinking; and which is of equal value, whether it be applied to the formation of opinions, or to the regulation of conduct.

II. The judgment is vitiated by want of due regulation; and this may be ascribed chiefly to two sources,—prejudice and passion. Prejudice consists in the formation of opinions before the subject has been really examined. By means of this, the attention is misdirected, and the judgment biassed, in a manner of which the individual is often in a great measure unconscious. The highest degree of it is exemplified in that condition of the mind in which a man first forms an opinion, which interest or inclination may have suggested; then proceeds to collect arguments in support of it; and concludes by reasoning himself into the belief of what he wishes to be true. It is thus that the judgment is apt to be misled, in a greater or less degree, by party spirit, and personal attachments or antipathies; and it is clear that all such influence is directly opposed to its sound and healthy exercise. The same observations apply to passion, or the influence exerted by the moral feelings. The most striking example of this is presented by that depraved condition of the mind, which

distorts the judgment in regard to the great principles of moral rectitude. "A man's understanding," says Mr. Locke, "seldom fails him in this part, unless his will would have it so; if he takes a wrong course, it is most commonly because he goes wilfully out of the way, or at least chooses to be bewildered; and there are few, if any, who dreadfully mistake, that are willing to be right."

These facts are worthy of much consideration, and they appear to be equally interesting to all classes of men, whatever may be the degree of their mental cultivation, and whatever the subjects are to which their attention is more particularly directed. There is one class of truths to which they apply with peculiar force,—namely, those which relate to the moral government of God, and the condition of man as a responsible being. These great truths, and the evidence on which they are founded, are addressed to our judgment as rational beings; they are pressed upon our attention as creatures destined for another state of existence; and the sacred duty from which no individual can be absolved, is a voluntary exercise of his thinking and reasoning powers, —it is solemnly, seriously, and deliberately to consider. On these subjects a man may frame any system for himself, and may rest in that system as truth; but the solemn inquiry is, not what opinions he has formed, but in what manner he has formed them. Has he approached the great inquiry with a

sincere desire to discover the truth; and has he brought to it a mind, neither misled by prejudice, nor distorted by the condition of its moral feelings; —has he directed his attention to all the facts and evidences, with an intensity suited to their momentous importance; and has he conducted the whole investigation with a deep and serious feeling, that it carries with it an interest which reaches into eternity? Truth is immutable and eternal, but it may elude the frivolous or prejudiced inquirer; and, even when he thinks his conclusions are the result of much examination, he may be resting his highest concerns in delusion and falsehood.

The human mind, indeed, even in its highest state of culture, has been found inadequate to the attainment of the true knowledge of the Deity; but a light from heaven has shone upon the scene of doubt and of darkness, which will conduct the humble inquirer through every difficulty, until he arrive at the full perception and commanding influence of the truth; —of truth such as human intellect never could have reached, and which, to every one who receives it, brings its own evidence that it comes from God.

Finally, the sound exercise of judgment has a remarkable influence in producing and maintaining that tranquillity of mind, which results from a due application of its powers, and a correct estimate of the relations of things. The want of this exercise

leads a man to be unduly engrossed with the frivolities of life, unreasonably elated by its joys, and unreasonably depressed by its sorrows. A sound and well-regulated judgment tends to preserve from all such disproportioned pursuits and emotions. It does so, by leading us to view all present things in their true relations, to estimate aright their relative value, and to fix the degree of attention of which they are worthy ;—it does so in a more especial manner, by leading us to compare the present life, which is so rapidly passing over us, with the paramount importance and overwhelming interest of the life which is to come.

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§ 2.

OF THE USE OF REASON IN CORRECTING THE IMPRESSIONS OF THE MIND IN REGARD TO EXTERNAL THINGS.

This subject leads to an investigation of great and extensive interest, of which I cannot hope to give more than a slight and imperfect outline. My anxiety is, that what is attempted may be confined to authentic facts, and the most cautious conclu-

sions; and that it may be of some use in leading to farther inquiry.

We have seen the power which the mind possesses, of recalling the vivid impression of scenes, or events long gone by, in that mental process which we call conception. We have seen also its power of taking the elements of actual scenes, and forming them into new combinations, so as to represent to itself scenes and events which have no real existence. We have likewise observed the remarkable manner in which persons, events, or scenes, long past, perhaps forgotten, are recalled into the mind by means of association;—trains of thought taking possession of the mind, in a manner which we often cannot account for, and bringing back facts or occurrences, which had long ceased to be objects of attention. These remarkable processes are most apt to take place, when the mind is in that passive state which we call a reverie; and they are more rarely observed, when the attention is actively exerted upon any distinct and continued subject of thought.

During the presence in the mind of such a representation, whether recalled by conception or association, or fabricated by imagination, there is, probably, for the time, a kind of belief of its real and present existence. But on the least return of the attention to the affairs of life, the vision is instantly dissipated; and this is done by reason, comparing the vision with the actual state of things in

the external world. The poet or the novelist, it is probable, feels himself, for the time, actually embodied in the person of his hero, and, in that character, judges, talks, and acts in the scene which he is depicting. This we call imagination; but, were the vision not to be dissipated on his return to the ordinary relations of life,—were he then to act in a single instance in the character of the being of his imagination,—this would constitute insanity.

The condition of mind here referred to does actually take place; namely, a state in which the visions or impressions of the mind itself are believed to have a real and present existence in the external world, and in which reason fails to correct this belief by the actual relations of external things. There are two conditions in which this occurs in a striking manner,—Insanity and Dreaming. Considered as mental phenomena, they have a remarkable affinity to each other. The great difference between them is, that, in insanity, the erroneous impression being permanent affects the conduct; whereas in dreaming, no influence on the conduct is produced, because the vision is dissipated upon awaking. The difference, again, between the mind under the influence of imagination, and in the state now under consideration, is, that in the former the vision is built up by a voluntary effort, and is varied or dismissed at pleasure; while, in dreaming and insanity, this power is suspended, and the mind is left entirely under the

influence of the chain of thoughts which happens to be present, without being able either to vary or dismiss it. The particular chain or series seems, in general, perhaps always, to depend upon associations previously formed; the various elements of which bring up one another in a variety of singular combinations, and in a manner which we often cannot trace, or in any degree account for. The facts connected with this branch of the subject form one of the most interesting parts of this investigation.

There are some other affections, which come under the same class; but insanity and dreaming are the two extreme examples. In dreaming, the bodily senses are in a great measure shut up from external impressions; and the influence of the will upon bodily motions is also suspended, so that no actions in general follow. We shall afterwards see, that there are exceptions to this,—but it is the common state in dreaming. In insanity, on the other hand, the bodily senses are awake to impressions from without, and bodily motion is under the influence of the will; hence the maniac acts, under his erroneous impressions, in a manner which often makes him dangerous to the community. There is an affection which holds an intermediate place between these two extremes, and presents a variety of interesting phenomena. This is Somnambulism. It differs from dreaming, in the senses being, to a certain degree, awake to external things: though

that power is suspended, by which the mental impressions are corrected by the influence of the external world. Thus the somnambulist often understands what is said to him, and can converse with another person in a tolerably connected manner, though always with some reference to his erroneous mental impressions. He acts, also, under the influence of these; but the remarkable difference between him and the maniac is, that the somnambulist can be roused from his vision, and then the whole is dissipated. There are cases, indeed, in which the hallucination is more permanent, and cannot be at once interrupted in this manner:—these of course come to border on insanity.

There is still a fourth condition connected with this curious subject; namely, that in which a person awake, and in other respects in possession of his rational powers, perceives spectral illusions. This, we shall see, is allied in a singular manner to the affections now referred to.

The subject, therefore, divides itself into four parts, which will form the separate topics of the following observations:—

1. Dreaming.
2. Somnambulism.
3. Insanity.
4. Spectral Illusions.

The causes of these remarkable conditions of the

mental functions are entirely beyond the reach of our inquiries; but the phenomena connected with them present a subject of most interesting investigation.

I.—DREAMING.

The peculiar condition of the mind in dreaming appears to be referable to two heads.

1. The impressions which arise in the mind are believed to have a real and present existence; and this belief is not corrected, as in the waking state, by comparing the conception with the things of the external world.

2. The ideas or images in the mind follow one another according to associations over which we have no control; we cannot, as in the waking state, vary the series, or stop it at our will.

One of the most curious objects of investigation is to trace the manner in which the particular visions or series of images arise. When considered in this view, a great variety may be observed in dreams. Some of those which we are able to trace most distinctly appear to be the following.

I. Recent events, and recent mental emotions, mingled up into one continuous series, with each other, or with old events,—by means of some feeling which had been in a greater or less degree allied

to each of them, though in other respects they were entirely unconnected. We hear, perhaps, of a distressing accident; we have received some unpleasant news of an absent friend; and we have been concerned in some business which gave rise to anxiety: A dream takes place, in which all these are combined together; we are ourselves connected with the accident; the absent friend is in our company; and the person with whom the business was transacted also appears in the scene. The only bond of union among those occurrences was, that each of them gave rise to a similar kind of emotion; and the train was probably excited by some bodily feeling of uneasiness, perhaps an oppression at the stomach, at the time when the dream occurred. Without this, the particular series might not have taken place at all; or some of the elements of it might have occurred in a totally different association. The absent friend might have appeared in connexion with old and pleasing recollections, combined perhaps with persons and events associated with these, and without any reference to the painful intelligence by which the attention had been directed to him.—We meet a person whom we have not seen for many years, and are led to inquire after old friends, and to allude to events long past. Dreams follow, in which these persons appear, and other persons and occurrences connected with them; but the individual, whose conversation gave rise to the series, does not appear in it, because he

was not connected with the particular chain of events which was thus recalled into the mind.

A woman, who was a patient in the Clinical Ward of the Infirmary of Edinburgh, under the care of my friend the late Dr. Duncan, talked a great deal in her sleep, and made numerous and very distinct allusions to the cases of other sick persons. These allusions did not apply to any patients who were in the ward at that time; but, after some observation, they were found to refer correctly to the cases of individuals who were there, when this woman was a patient in the ward, two years before.

II. Trains of images brought up by association with bodily sensations. Examples of this kind are of frequent occurrence. By the kind attention of my lamented friend, the late Dr. James Gregory, I received a most interesting manuscript by his late eminent father, which contains a variety of curious matter on this subject. In this paper, Dr. Gregory mentions of himself, that, having on one occasion gone to bed with a vessel of hot water at his feet, he dreamt of walking up the crater of Mount Etna, and of feeling the ground warm under him. He had, at an early period of his life, visited Mount Vesuvius, and actually felt a strong sensation of warmth in his feet, when walking up the side of the crater; but, it was remarkable that the dream was not of Vesuvius, but of Etna, of which he had only

read Brydone's description. This was probably from the latter impression having been the more recent. On another occasion, he dreamt of spending a winter at Hudson's Bay, and of suffering much distress from the intense frost. He found that he had thrown off the bed-clothes in his sleep; and, a few days before, he had been reading a very particular account of the state of the colonies in that country during winter. Again, when suffering from toothache, he dreamt of undergoing the operation of tooth-drawing, with the additional circumstance, that the operator drew a sound tooth, leaving the aching one in its place. But the most striking anecdote in this interesting document, is one in which similar dreams were produced in a gentleman and his wife, at the same time, and by the same cause. It happened at the period when there was an alarm of French invasion, and almost every man in Edinburgh was a soldier. All things had been arranged in expectation of the landing of an enemy; the first notice of which was to be given by a gun from the Castle, and this was to be followed by a chain of signals calculated to alarm the country in all directions. Farther, there had been recently in Edinburgh a splendid military spectacle, in which five thousand men had been drawn up in Princes Street, fronting the castle.—The gentleman to whom the dream occurred, and who had been a most zealous volunteer, was in bed between two and three o'clock in the morning, when he

dreamt of hearing the signal-gun. He was immediately at the Castle, witnessed the proceedings for displaying the signals, and saw and heard a great bustle over the town, from troops and artillery assembling, especially in Princes Street. At this time, he was roused by his wife, who awoke in a fright, in consequence of a similar dream, connected with much noise and the landing of an enemy, and concluding with the death of a particular friend of her husband's, who had served with him as a volunteer during the late war. The origin of this remarkable concurrence was ascertained, in the morning, to be the noise produced in the room above, by the fall of a pair of tongs, which had been left in some very awkward position, in support of a clothes-screen.—Dr. Reid relates of himself, that the dressing, applied after a blister on his head, having become ruffled so as to produce considerable uneasiness, he dreamt of falling into the hands of savages and being scalped by them.

To this part of the subject are to be referred some remarkable cases, in which, in particular individuals, dreams can be produced by whispering into their ears when they are asleep. One of the most curious, as well as authentic examples of this kind, has been referred to by several writers: I find the particulars in the paper of Dr. Gregory, and they were related to him by a gentleman who witnessed them. The subject of it was an officer in

the expedition to Louisburgh in 1758, who had this peculiarity in so remarkable a degree, that his companions in the transport were in the constant habit of amusing themselves at his expense. They could produce in him any kind of dream, by whispering into his ear, especially if this was done by a friend with whose voice he was familiar. At one time, they conducted him through the whole progress of a quarrel, which ended in a duel; and, when the parties were supposed to be met, a pistol was put into his hand, which he fired, and was awakened by the report. On another occasion, they found him asleep on the top of a locker or bunker in the cabin, when they made him believe he had fallen overboard, and exhorted him to save himself by swimming. He immediately imitated all the motions of swimming. They then told him that a shark was pursuing him, and entreated him to dive for his life. He instantly did so, with such force as to throw himself entirely from the locker upon the cabin-floor, by which he was much bruised, and awakened of course. After the landing of the army at Louisburgh, his friends found him one day asleep in his tent, and evidently much annoyed by the cannonading. They then made him believe that he was engaged, when he expressed great fear, and showed an evident disposition to run away. Against this they remonstrated, but, at the same time, increased his fears, by imitating the groans of the wounded and the dying; and,

when he asked, as he often did, who was down, they named his particular friends. At last they told him that the man next himself in the line had fallen, when he instantly sprung from his bed, rushed out of the tent, and was roused from his danger and his dream together by falling over the tent-ropes. A remarkable circumstance in this case was, that, after these experiments, he had no distinct recollection of his dreams, but only a confused feeling of oppression or fatigue; and used to tell his friends that he was sure they had been playing some trick upon him. A case entirely similar is related in Smellie's Natural History, the subject of which was a medical student at the university of Edinburgh.

A singular fact has often been observed in dreams which are excited by a noise; namely, that the same sound awakes the person, and produces a dream which appears to him to occupy a considerable time. The following example of this has been related to me. A gentleman dreamt that he had enlisted as a soldier, joined his regiment, deserted, was apprehended, carried back, tried, condemned to be shot, and at last, led out for execution. After all the usual preparations, a gun was fired; he awoke with the report, and found that a noise in an adjoining room had both produced the dream and awaked him. The same want of the notion of time is observed in dreams from other causes. Dr. Gregory mentions a gentleman, who, after sleeping in a damp place, was

for a long time liable to a feeling of suffocation whenever he slept in a lying posture; and this was always accompanied by a dream of a skeleton which grasped him violently by the throat. He could sleep in a sitting posture without any uneasy feeling; and, after trying various expedients, he at last had a sentinel placed beside him, with orders to awake him whenever he sunk down. On one occasion he was attacked by the skeleton, and a severe and long struggle ensued before he awoke. On finding fault with his attendant for allowing him to lie so long in such a state of suffering, he was assured that he had not lain an instant, but had been awakened the moment he began to sink. The gentleman, after a considerable time, recovered from the affection. A friend of mine dreamt that he crossed the Atlantic, and spent a fortnight in America. In embarking on his return, he fell into the sea; and, having awaked with the fright, discovered that he had not been asleep above ten minutes.

III. Dreams consisting of the revival of old associations, respecting things which had entirely passed out of the mind, and which seemed to have been forgotten. It is often impossible to trace the manner in which these dreams arise: and some of the facts connected with them scarcely appear referable to any principle with which we are at present acquainted. The following example occurred to a particular friend

of mine, and may be relied upon in its most minute particulars.

The gentleman was at the time connected with one of the principal banks in Glasgow, and was at his place at the tellers' table, where money is paid, when a person entered demanding payment of a sum of six pounds. There were several people waiting, who were, in turn, entitled to be attended to before him, but he was extremely impatient, and rather noisy; and, being besides a remarkable stammerer, he became so annoying, that another gentleman requested my friend to pay him his money and get rid of him. He did so, accordingly, but with an expression of impatience at being obliged to attend to him before his turn, and thought no more of the transaction. At the end of the year, which was eight or nine months after, the books of the bank could not be made to balance, the deficiency being exactly six pounds. Several days and nights had been spent in endeavouring to discover the error, but without success; when, at last, my friend returned home, much fatigued, and went to bed. He dreamt of being at his place in the bank,—and the whole transaction with the stammerer, as now detailed, passed before him in all its particulars. He awoke under a full impression that the dream was to lead him to the discovery of what he was so anxiously in search of; and, on examination, soon discovered that the sum paid to this person in the manner now men-

tioned, had been neglected to be inserted in the book of interests, and that it exactly accounted for the error in the balance.

This case, upon a little consideration, will appear to be exceedingly remarkable, because the impression, called up in this singular manner, was one of which there was no consciousness at the time when it occurred; and, consequently, we cannot suppose, that any association took place which could have assisted in recalling it. For the fact, upon which the importance of the case rested, was, not his having paid the money, but having neglected to insert the payment. Now of this there was no impression made upon the mind at the time, and we can scarcely conceive on what principle it could be recalled. The deficiency being six pounds, we may, indeed, suppose the gentleman endeavouring to recollect, whether there could have been a payment of this sum made in any irregular manner, which could have led to an omission, or an error; but, in the transactions of an extensive bank, in a great commercial city, a payment of six pounds, at the distance of eight or nine months, could have made but a very faint impression; and, upon the whole, the case presents, perhaps, one of the most remarkable mental phenomena connected with this curious subject.

The following is of the same nature, though much less extraordinary, from the shortness of the interval;

and it may perhaps be considered as a simple act of memory, though, for the same reason as in the former case, we cannot trace any association which could have recalled the circumstance. A gentleman who was appointed to an office in one of the principal banks in Edinburgh, found, on balancing his first day's transactions, that the money under his charge was deficient by ten pounds. After many fruitless attempts to discover the cause of the error, he went home, not a little annoyed by the result of his first experiment in banking. In the night, he dreamt that he was at his place in the bank, and that a gentleman, who was personally known to him, presented a draught for ten pounds. On awaking, he recollected the dream, and also recollected, that the gentleman who appeared in it had actually received ten pounds. On going to the bank, he found that he had neglected to enter the payment, and that the gentleman's order had by accident fallen among some pieces of paper, which had been thrown on the floor to be swept away.

I have formerly referred to some remarkable cases in which languages long forgotten were recovered during a state of delirium. Something very analogous seems to occur in dreaming, of which I have received the following example from an able and intelligent friend. In his youth he was very fond of the Greek language, and made considerable progress in it; but, being afterwards actively engaged in

other pursuits, he so entirely forgot it that he cannot now even read the words. But he has often dreamt of reading Greek works which he had been accustomed to use at college, and with a most vivid impression of fully understanding them.

A farther and most interesting illustration of the class of dreams referred to under this head, is found in an anecdote published by the distinguished author of the Waverley novels, and considered by him as authentic :—" Mr. R. of Bowland, a gentleman of landed property in the vale of Gala, was prosecuted for a very considerable sum, the accumulated arrears of teind (or tithe) for which he was said to be indebted to a noble family, the titulars (lay impropriators of the tithes.) Mr. R. was strongly impressed with the belief that his father had, by a form of process peculiar to the law of Scotland, purchased these teinds from the titular, and, therefore, that the present prosecution was groundless. But, after an industrious search among his father's papers, an investigation of the public records, and a careful inquiry among all persons who had transacted law-business for his father, no evidence could be recovered to support his defence. The period was now near at hand when he conceived the loss of his lawsuit to be inevitable, and he had formed his determination to ride to Edinburgh next day, and make the best bargain he could in the way of compromise. He went to bed with this resolution, and, with all the circumstances

of the case floating upon his mind, had a dream to the following purpose. His father, who had been many years dead, appeared to him, he thought, and asked him why he was disturbed in his mind. In dreams men are not surprised at such apparitions. Mr. R. thought that he informed his father of the cause of his distress, adding, that the payment of a considerable sum of money was the more unpleasant to him, because he had a strong consciousness that it was not due, though he was unable to recover any evidence in support of his belief. 'You are right, my son,' replied the paternal shade; 'I did acquire right to these teinds, for payment of which you are now prosecuted. The papers relating to the transaction are in the hands of Mr. ——, a writer, (or attorney,) who is now retired from professional business, and resides at Inveresk, near Edinburgh. He was a person whom I employed on that occasion for a particular reason, but who never, on any other occasion, transacted business on my account. It is very possible,' pursued the vision, 'that Mr. —— may have forgotten a matter, which is now of a very old date; but you may call it to his recollection by this token, that, when I came to pay his account, there was difficulty in getting change for a Portugal piece of gold, and that we were forced to drink out the balance at a tavern.'

"Mr. R. awaked in the morning, with all the words of the vision imprinted on his mind, and

thought it worth while to ride across the country to Inveresk, instead of going straight to Edinburgh. When he came there he waited on the gentleman mentioned in the dream, a very old man; without saying any thing of the vision, he inquired whether he remembered having conducted such a matter for his deceased father. The old gentleman could not at first bring the circumstance to his recollection, but, on mention of the Portugal piece of gold, the whole returned upon his memory; he made an immediate search for the papers, and recovered them,—so that Mr. R. carried to Edinburgh the documents necessary to gain the cause which he was on the verge of losing."*

There is every reason to believe that this very interesting case is referable to the principle lately mentioned; that the gentleman had heard the circumstances from his father, but had entirely forgotten them, until the frequent and intense application of his mind to the subject with which they were connected, at length gave rise to a train of association which recalled them in the dream. To the same principle are referable the two following anecdotes, which I have received as entirely authentic,—the first of them from the individual to whom it occurred. A gentleman of the law in Edinburgh had mislaid an important paper connected with the conveyance of

* Notes to the new edition of the Waverley Novels, vol. v.

a property which was to be settled on a particular day. Most anxious search had been made for it, for many days, but the evening of the day previous to that on which the parties were to meet for the final settlement had arrived, without the paper being discovered. The son of the gentleman then went to bed under much anxiety and disappointment, and dreamt, that at the time when the missing paper was delivered to his father, his table was covered with papers connected with the affairs of a particular client. He awoke under the impression, went immediately to a box appropriated to the papers of that client, and there found the paper they had been in search of, which had been tied up by mistake in a parcel to which it was in no way related. Another individual connected with a public office, had mislaid a paper of such importance, that he was threatened with the loss of his situation if he did not produce it. After a long but unsuccessful search, under intense anxiety, he also dreamt of discovering the paper in a particular place, and found it there accordingly.

There is therefore little reason to doubt, that facts or events may be brought up by association in dreams, which had entirely passed out of the mind, and had long ceased to be objects either of attention or memory. But there is reason, farther, to believe, that events may be brought up in this manner,

which had been so communicated to the mind as never to become objects of memory. The case lately referred to, respecting the banker in Glasgow, may perhaps be considered as of this nature; and there are other authentic facts which can only be explained on this principle. During a late investigation in the north of Scotland, respecting an atrocious murder committed on a pedler, a man came forward voluntarily and declared, that he had had a dream, in which there was represented to him a house, and a voice directed him to a spot near the house, in which there was buried the *pack*, or box for small articles of merchandise, of the murdered person. On search being made, the pack was found, not precisely at the spot which he had mentioned, but very near it. The first impression on the minds of the public authorities was, that he was either the murderer, or an accomplice in the crime. But the individual accused was soon after clearly convicted;—before his execution he fully confessed his crime, and, in the strongest manner, exculpated the dreamer from any participation in, or knowledge of, the murder. The only fact that could be discovered, calculated to throw any light upon the occurrence was, that, immediately after the murder, the dreamer and the murderer had been together, in a state of almost constant intoxication, for several days; and it is supposed that the latter might have allowed statements

to escape from him, which had been recalled to the other in his dream, though he had no remembrance of them in his sober hours.

IV. A class of dreams, which presents an interesting subject of observation, includes those in which a strong propensity of character, or a strong mental emotion, is embodied into a dream, and, by some natural coincidence, is fulfilled. A murderer mentioned by Mr. Combe had dreamt of committing murder some years before the event happened;—and I have received, from a distinguished officer to whom it occurred, the following history, in which a dream of a very improbable kind was fulfilled ten years after it took place, and when the dream was entirely forgotten. At the age of between fourteen and fifteen, being then living in England, he dreamt that he had ascended the crater of Mount Etna; that, not contented with what he saw on the outside, he determined to descend into the interior, and proceeded accordingly. About the top there seemed to be a good deal of flame and smoke, but a short way down all was quiet, and he managed to descend by means of steps like the holes in a pigeon-house. His footing, however, soon gave way, and he awoke in all the horrors of having narrowly escaped the fate of the philosopher Empedocles. In the year 1811, being then a captain in the British army, and stationed at Messina, he made one of a party of Bri-

tish officers, who proceeded to visit the top of Mount Etna. By the time they reached the bottom of the cone, several of the party became so unwell that they could proceed no farther; but this gentleman, accompanied by two other officers, and two guides, proceeded upwards; and, after a severe scramble of several hours, they reached the summit in time to witness the rising of the sun. "After having rested for about an hour," says my informer, "and had something to eat, I said to my companions,—we are now on the top of this famous crater, why should we not pay a visit to the bottom? I was of course laughed at, and, on applying to the guides to know if they would accompany me, they said, we have always heard that the English are mad, but now we know it. I was not, however, to be put off, and being strong and active, determined to go alone,—but Captain M—— at last agreed to go with me;—the guides would not assist in any way. The circumference of the crater is about three miles outside, the interior is like a large amphitheatre, with an area of about an acre, I should say, at the bottom. It is only towards the upper lips of the crater that smoke now issues,—no eruption having taken place from the bottom for very many years. At one particular part of the crater the matter had given way, and slid down, so as to form a sort of sloping bank to the very bottom. To this point we proceeded, and found our descent easy enough; and without much difficulty or any

great danger, we stood, in the course of an hour, to the no small astonishment of the guides, on the very lowest stone on the inside of the crater of Mount Etna. In the centre is a large hole, like an old draw-well, partly filled up with large stones and ashes. Our ascent was tremendous, and the fatigue excessive. I suppose we were at least 500 feet below the lowest part of the upper mouth of the crater, and, as our footing was entirely on ashes, and stuff which gave way, the struggle upwards was a trial of *bottom*, which I believe very few would have gone through. We reached the top much exhausted, but very proud of our achievement; and we had the satisfaction to learn, at Catania, that we were not only the first who ever went down, but the first who had ever thought of it. When in bed that night, but not asleep, the dream of ten years back came to my recollection for the first time; and it does appear to me remarkable, that I should have dreamt of what I never could have heard of as being possible, and that ten years afterwards I should accomplish what no one ever had attempted, and what was looked upon by the natives as an impossibility."

To this part of the subject we are to refer those instances, many of them authentic, in which a dream has given notice of an event which was occurring at the time, or occurred soon after. The following story has been long mentioned in Edinburgh, and there seems no reason to doubt its authenticity. A clergy-

man had come to this city from a short distance in the country, and was sleeping at an inn, when he dreamt of seeing a fire, and one of his children in the midst of it. He awoke with the impression, and instantly left town on his return home. When he arrived within sight of his house, he found it on fire, and got there in time to assist in saving one of his children, who, in the alarm and confusion, had been left in a situation of danger. Without calling in question the possibility of supernatural communication in such cases, this striking occurrence, of which I believe there is little reason to doubt the truth, may perhaps be accounted for on simple and natural principles. Let us suppose, that the gentleman had a servant who had shown great carelessness in regard to fire, and had often given rise in his mind to a strong apprehension that he might set fire to the house. His anxiety might be increased by being from home, and the same circumstance might make the servant still more careless. Let us farther suppose, that the gentleman, before going to bed, had, in addition to this anxiety, suddenly recollected, that there was on that day, in the neighbourhood of his house, some fair or periodical merry-making, from which the servant was very likely to return home in a state of intoxication. It was most natural that these impressions should be embodied into a dream of his house being on fire, and that the same circumstances might lead to the dream being fulfilled.

A gentleman in Edinburgh was affected with aneurism of the popliteal artery, for which he was under the care of two eminent surgeons, and the day was fixed for the operation. About two days before the time appointed for it, the wife of the patient dreamt that a change had taken place in the disease, in consequence of which the operation would not be required. On examining the tumor in the morning, the gentleman was astonished to find that the pulsation had entirely ceased; and, in short, this turned out to be a spontaneous cure. To persons not professional, it may be right to mention, that the cure of popliteal aneurism without an operation is a very uncommon occurrence, not happening in one out of numerous instances, and never to be looked upon as probable in any individual case. It is likely, however, that the lady had heard of the possibility of such a termination, and that her anxiety had very naturally embodied this into a dream: the fulfilment of it at the very time when the event took place is certainly a very remarkable coincidence. The following anecdotes also I am enabled to give as entirely authentic. —A lady dreamt that an aged female relative had been murdered by a black servant, and the dream occurred more than once. She was then so impressed by it, that she went to the house of the lady to whom it related, and prevailed upon a gentleman to watch in an adjoining room during the following night. About three o'clock in the morning, the gentleman,

hearing footsteps on the stair, left his place of concealment, and met the servant carrying up a quantity of coals. Being questioned as to where he was going, he replied, in a confused and hurried manner, that he was going to mend his mistress' fire,—which, at three o'clock in the morning, in the middle of summer, was evidently impossible; and, on farther investigation, a strong knife was found concealed beneath the coals.—Another lady dreamt that a boy, her nephew, had been drowned along with some young companions with whom he had engaged to go on a sailing excursion in the Firth of Forth. She sent for him in the morning, and, with much difficulty, prevailed upon him to give up his engagement; his companions went and were all drowned.—A gentleman dreamt that the devil carried him down to the bottom of a coal pit, where he threatened to burn him, unless he would agree to give himself up to his service. This he refused to do, and a warm altercation followed. He was at last allowed to depart, upon condition of sending down an individual whom the devil named, a worthless character well known in the neighbourhood. A few days after, this person was found drowned, and under circumstances which gave every reason to believe that his death had been voluntary.—A lady in Edinburgh had sent her watch to be repaired: a long time elapsed without her being able to recover it, and, after many excuses, she began to suspect that something was wrong. She now dreamt that

the watchmaker's boy, by whom the watch was sent, had dropped it in the street, and injured it in such a manner that it could not be repaired. She then went to the master, and, without any allusion to her dream, put the question to him directly, when he confessed that it was true.

Such coincidences derive their wonderful character from standing alone, and apart from those numerous instances in which such dreams take place without any fulfilment. An instance of a very singular kind is mentioned by Mr. Joseph Taylor, and is given by him as an undoubted fact. A young man, who was at an academy a hundred miles from home, dreamt that he went to his father's house in the night, tried the front-door, but found it locked; got in by a back-door, and, finding nobody out of bed, went directly to the bed-room of his parents. He then said to his mother, whom he found awake, "Mother, I am going a long journey, and am come to bid you good bye." On this, she answered under much agitation, "Oh dear son, thou art dead!" He instantly awoke, and thought no more of his dream, until, a few days after, he received a letter from his father, inquiring very anxiously after his health, in consequence of a frightful dream his mother had on the same night in which the dream now mentioned occurred to him. She dreamt that she heard some one attempt to open the front-door, then go to the back-door, and at last come into her bed-room. She

then saw it was her son, who came to the side of her bed, and said, "Mother, I am going a long journey, and am come to bid you good bye;" on which she exclaimed, "Oh dear son, thou art dead!" But nothing unusual happened to any of the parties;—the singular dream must have originated in some strong mental impression which had been made on both the individuals about the same time; and to have traced the source of it would have been a subject of great interest.

On a similar principle, we are to account for some of the stories of second sight. A gentleman sitting by the fire on a stormy night, and anxious about some of his domestics who are at sea in a boat, drops asleep for a few seconds, dreams very naturally of drowning men, and starts up with the exclamation that his boat is lost. If the boat returns in safety, the vision is no more thought of. If it is lost, as is very likely to happen, the story passes for second sight; and it is, in fact, one of the anecdotes that are given as the most authentic instances of it.

It is unnecessary to multiply examples of the fulfilment of dreams on the principles which have now been mentioned; but I am induced to add the following, as it is certainly of a very interesting kind, and as I am enabled to give it as entirely authentic in all its particulars. A most respectable clergyman, in a country parish of Scotland, made a collection at his church for an object of public benevolence, in

which he felt deeply interested. The amount of the collection, which was received in ladles carried through the church, fell greatly short of his expectation; and, during the evening of the day, he frequently alluded to this with expressions of much disappointment. In the following night he dreamt that three one-pound notes had been left in one of the ladles, having been so compressed by the money which had been thrown in above them, that they had stuck in the corner when the ladle was emptied. He was so impressed by the vision, that at an early hour in the morning he went to the church;—found the ladle which he had seen in his dream, and drew from one of the corners of it three one pound notes. This interesting case is perhaps capable of explanation upon simple principles. It appears, that, on the evening preceding the day of the collection, the clergyman had been amusing himself by calculating what sum his congregation would probably contribute, and that, in doing so, he had calculated on a certain number of families, who would not give him less than a pound each. Let us then suppose, that a particular ladle, which he knew to have been presented to three of these families, had been emptied in his presence, and found to contain no pound notes. His first feeling would be that of disappointment; but, in afterwards thinking of the subject, and connecting it with his former calculation, the possibility of the ladle not having been fully emptied might dart across his

mind. This impression, which perhaps he did not himself recollect, might then be embodied into the dream, which, by a natural coincidence, was fulfilled.

The four classes which have now been mentioned, appear to include the principal varieties of dreams; and it is often a matter of great interest to trace the manner in which the particular associations arise. Cases of dreams are indeed on record, which are not referable to any of the classes which have been mentioned, and which do not admit of explanation on any principle which we are able to trace. Many of these histories, there is every reason to believe, derive their marvellous character from embellishment and exaggeration; and, in some instances which have been related to me in the most confident manner, I have found this to be the case after a little investigation. Others, however, do not admit of this explanation, and we are compelled to receive them as facts which we can in no degree account for. Of this kind I shall add the following example; and I shall do so without any attempt at explanation, and without any other comment than that its accuracy may be relied on, in all its particulars.—Two ladies, sisters, had been for several days in attendance upon their brother, who was ill of a common sore throat, severe and protracted, but not considered as attended with danger. At the same time, one of them had borrowed a watch from a female friend, in consequence of her

own being under repair;—this watch was one to which particular value was attached on account of family associations, and some anxiety was expressed that it might not meet with any injury. The sisters were sleeping together in a room communicating with that of their brother, when the elder of them awoke in a state of great agitation, and having roused the other, told her that she had had a frightful dream. "I dreamt," she said, "that Mary's watch stopped; and that, when I told you of the circumstance, you replied, much worse than that has happened, for ——'s breath has stopped also,"—naming their brother, who was ill. To quiet her agitation, the younger sister immediately got up, and found the brother sleeping quietly, and the watch, which had been carefully put by in a drawer, going correctly. The following night the very same dream occurred, followed by similar agitation, which was again composed in the same manner,—the brother being again found in a quiet sleep, and the watch going well. On the following morning, soon after the family had breakfasted, one of the sisters was sitting by her brother, while the other was writing a note in the adjoining room. When her note was ready for being sealed, she was proceeding to take out, for this purpose, the watch alluded to, which had been put by in her writing-desk;—she was astonished to find it had stopped. At the same instant she heard a scream of intense distress from her sister in the other room,

—their brother, who had still been considered as going on favourably, had been seized with a sudden fit of suffocation, and had just breathed his last.

Many examples have been related of dreams which gave warning of events which were taking place at the time, or took place soon after; but they are certainly to be received with great caution. The following instances I can state as perfectly authentic, having received them from most respectable and intelligent individuals to whom they occurred.

A gentleman of Scotland was residing in Italy, when he dreamt that he was standing on a bridge near his property in Scotland, and saw preparations for a funeral, and a servant riding by him in great haste, whom he recognised as wearing the livery of a neighbouring proprietor. He mentioned his dream to a friend who was with him, and expressed his fear that something had occurred in the family of his neighbour,—but was only laughed at for his apprehension. In due time, however, he learnt, that the wife of the gentleman, whom he named, had died at the time when the dream occurred to him; and it may be right to state, that she was a young woman, previously in good health, and died of a short illness after her accouchement.

Many years ago there was mentioned in several of the newspapers, a dream which gave notice of the murder of Mr. Percival. Through the kindness of an eminent medical friend in England, I have re-

ceived the authentic particulars of this remarkable case, from the gentleman to whom the dream occurred. He resides in Cornwall, and eight days before the murder was committed, dreamt that he was in the lobby of the House of Commons, and saw a small man enter, dressed in a blue coat and white waistcoat. Immediately after, he saw a man dressed in a brown coat with yellow basket metal buttons, draw a pistol from under his coat, and discharge it at the former, who instantly fell,—the blood issuing from a wound a little below the left breast. He saw the murderer seized by some gentlemen who were present, and observed his countenance; and, on asking who the gentleman was who had been shot, he was told it was the Chancellor. (Mr. Percival was, at the time, Chancellor of the Exchequer.) He then awoke, and mentioned the dream to his wife, who made light of it,—but in the course of the night the dream occurred three times without the least variation in any of the circumstances. He was now so much impressed by it, that he felt much inclined to give notice to Mr. Percival, but was dissuaded by some friends whom he consulted, who assured him he would only get himself treated as a fanatic. On the evening of the eighth day after, he received the account of the murder. Being in London a short time after, he found in the print-shops a representation of the scene, and recognised in it the countenances and dress of the parties, the blood on Mr.

Percival's waistcoat, and the peculiar yellow basket buttons on Bellingham's coat, precisely as he had seen them in his dream.

The gentleman to whom I am indebted for the following case, was born in Madras; and was brought from thence at the age of three years, to be educated in England, where he grew up without the least recollection of any thing relating to Madras, or to his parents who remained in India. At the age of fourteen, he dreamt that he saw his mother sitting in the dress of a widow, and apparently under deep distress; and he gave a distinct account of the apartment in which he saw her, with the position of various prominent articles of furniture which he described minutely. It afterwards turned out, that his father died about the time of the dream; and that he had correctly described a drawing-room in the house at Madras in which his mother was in the habit of sitting. This last feature of the case, I think, we may fairly consider as the revival of an old impression respecting the drawing-room, though it had long ceased to be an object of memory;—of the other part I do not attempt an explanation.

There are various other circumstances relating to the philosophy of dreams, which may be mentioned very briefly. It has been alleged that we never dream of objects which we have not seen. On this I cannot decide; but we certainly dream of things in com-

binations in which they never occurred to us. Our dreams appear to be very much influenced by the intensity of our conceptions, and, in this respect, there is great variety in regard to the objects of the different senses. Our most vivid conceptions are certainly of objects of sight; and they appear to be much less distinct in regard to tastes, smells, and even sounds. Accordingly, I think dreams are chiefly occupied with objects of sight; and I am not sure that we dream of tastes, or smells, or even of sounds, unless when a sound actually takes place, as in several instances which have been mentioned. This, indeed, only applies to simple sounds, for we certainly dream of persons speaking to us, and of understanding what they say,—but I am not sure that this is necessarily accompanied with a conception of sound. I am informed by a friend, who is a keen sportsman, that he often dreams of being on shooting excursions;—that he starts his game, and points his gun, but never succeeds in firing it. It sometimes seems to miss fire, but in general there appears to be something wrong with the lock, so that it cannot be moved. A gentleman, mentioned by Dr. Darwin, had been for thirty years so deaf that he could be conversed with only in writing, or by forming letters with the fingers. He assured Dr. Darwin that he never dreamt of persons conversing with him except by the fingers or in writing, and that he never had the impression of hearing them speak. Two persons

who had long been blind, also informed him, that they never dreamt of visible objects since the loss of their sight. Mr. Bew, however, in the Manchester Memoirs, mentions a blind gentleman who dreamt of the figure, though he could not distinguish the varieties, of the human countenance; and Smellie mentions of Dr. Blacklock, who lost his sight at the age of a few months, that, in his dreams, he had a distinct impression of a sense which he did not possess when awake. He described his impression by saying, that when awake there were three ways by which he could distinguish persons,—namely, by hearing them speak, by feeling the head and shoulders, and by attending to the sound and manner of their breathing. In his dreams, however, he had a vivid impression of objects, in a manner distinct from any of these modes. He imagined that he was united to them, by a kind of distant contact, which was effected by threads or strings passing from their bodies to his own.

On a similar principle, probably, we may explain the fact, that dreams refer chiefly to persons or events which we have actually seen, though they are put into new combinations; and that we more rarely dream of objects of simple memory, unless they have been strongly associated with some object of conception. Thus we seldom dream of events or characters in ancient history. Dr. Beattie, indeed, mentions having dreamt of crossing the Alps with Hannibal; but such

dreams, I think, are very rare. It would be curious to observe their occurrence, and to trace the train that leads to them.

It appears, then, that the mental operations which take place in dreaming, consist chiefly of old conceptions and old associations, following one another according to some principle of succession, over which we have no control. But there are facts on record which show mental operations in dreams, of a much more intellectual character. Many people have been conscious of something like composition in dreams. Dr. Gregory mentions, that thoughts, which sometimes occurred to him in dreams, and even the particular expressions in which they were conveyed, appeared to him afterwards, when awake, so just in point of reasoning and illustration, and so good in point of language, that he has used them in his college lectures, and in his written lucubrations. Condorcet related of himself, that, when engaged in some profound and obscure calculations, he was often obliged to leave them in an incomplete state, and retire to rest; and that the remaining steps, and the conclusion of his calculations, had more than once presented themselves in his dreams. Dr. Franklin also informed Cabanis, that the bearings and issue of political events, which had puzzled him when awake, were not unfrequently unfolded to him in his dreams. A gentleman of Edinburgh, whose name is deeply associated with the literature of his country, had

been one day much amused by reading a very witty epigram, by Piron, on the French Academy. In a dream the following night, he composed a parody or imitation of it, much at the expense of a learned society in Edinburgh, and some individuals of this city.—A gentleman had been reading an account of the cruelties practised upon some Christians in Turkey, by the mutilation of their noses and ears. In a dream the following night, he witnessed the execution of a punishment of this kind, and heard a Turk, who was standing by, address the sufferer in some doggerel rhymes, which he distinctly recollected and repeated in the morning. Another gentleman invented a French verb in a dream. He thought he was in a very close sort of pent-house, with such a number of persons, that they were threatened with suffocation, as there appeared no way of letting in air. In this state he called out,—*il faut detoiter*. There is no such word, but it was evidently formed from *toit*, the roof of a building.

The following anecdote has been preserved in a family of rank in Scotland, the descendants of a distinguished lawyer of the last age. This eminent person had been consulted respecting a case of great importance and much difficulty; and he had been studying it with intense anxiety and attention. After several days had been occupied in this manner, he was observed by his wife to rise from his bed in the night, and go to a writing-desk which stood in

the bed-room. He then sat down, and wrote a long paper, which he put carefully by in the desk, and returned to bed. The following morning he told his wife that he had had a most interesting dream;—that he had dreamt of delivering a clear and luminous opinion respecting a case which had exceedingly perplexed him; and that he would give any thing to recover the train of thought which had passed before him in his dream. She then directed him to the writing-desk, where he found the opinion clearly and fully written out, and which was afterwards found to be perfectly correct.

There can be no doubt, that many dreams take place which are not remembered, as appears from the fact of a person talking in his sleep, so as to be distinctly understood, without remembering any thing of the impression that gave rise to it. It is probable, also, that the dreams which are most distinctly remembered, are those which occur during imperfect sleep, or when the sleep begins to be broken by an approach towards waking. Another very peculiar state has perhaps occurred to most people, in which there is a distressing dream, and at the same time an impression that it probably is only a dream. This appears to take place in a still more imperfect state of sleep, in which there is the immediate approach to waking, and to the exercise of the reasoning powers. But there are some very singular facts on record, of this kind of reasoning

being applied to dreams for the purpose of dissipating them. Dr. Beattie mentions of himself, that, in a dream, he once found himself standing in a very peculiar situation on the parapet of a bridge. Recollecting, he says, that he never was given to pranks of this nature, he began to fancy that it might be a dream, and determined to throw himself headlong, in the belief that this would restore his senses, which accordingly took place. In the same manner, Dr. Reid cured himself of a tendency to frightful dreams, with which he had been annoyed from his early years. He endeavoured to fix strongly on his mind the impression, that all such dangers in dreams are but imaginary; and determined, whenever, in a dream, he found himself on the brink of a precipice, to throw himself over, and so dissipate the vision. By persevering in this method, he so removed the propensity, that, for forty years, he was never sensible of dreaming, though he was very attentive in his observation on the subject.

Some persons are never conscious of dreaming; and a gentleman, mentioned by Locke, was not sensible of dreaming till he had a fever at the age of twenty-six or twenty-seven.

A leading peculiarity in the phenomena of dreaming is the loss of power over the succession of our thoughts. We have seen that there are some exceptions to this, but the fact applies to by far the greater number of dreams, and some curious pheno-

mena appear to be referable to it. Of this kind are probably some of those singular instances of imaginary difficulties occurring in dreams, on subjects on which none could be felt in the waking state. It is not uncommon for a clergyman to dream that he is going to preach, and cannot find his text; or for a clergyman of the church of England, that he cannot find the place in the prayer-book. This, I think, can only be explained by supposing, that, in the chain of ideas passing through the mind, the church and prayer-book had come up, but had then led off into some other train, and not into that of actually going on with the service; while, at the same time, there arose in the mind a kind of impression that, under these circumstances, it ought to have been gone on with.

The remarkable analogy between dreaming and insanity has already been referred to; and I shall only add the following illustration. Dr. Gregory mentions a maniac who had been for some time under his care, and entirely recovered. For a week after his recovery he was harassed, during his dreams, by the same rapid and tumultuous thoughts, and the same violent passions, by which he had been agitated during his insanity.

The slight outline which has now been given of dreaming may serve to show that the subject is not only curious but important. It appears to be worthy

of carefnl investigation, and there is much reason to believe that an extensive collection of authentic facts, carefully analyzed, would unfold principles of very great interest in reference to the philosophy of the mental powers.

II.—SOMNAMBULISM.

Somnambulism appears to differ from dreaming chiefly in the degree in which the bodily functions are affected. The mind is fixed, in the same manner as in dreaming, upon its own impressions, as possessing a real and present existence in external things; but the bodily organs are more under the control of the will, so that the individual acts under the influence of his erroneous conceptions, and holds conversation in regard to them. He is also, to a certain degree, susceptible of impressions from without through his organs of sense; not however so as to correct his erroneous impressions, but rather to be mixed up with them. A variety of remarkable phenomena arise out of these peculiarities, which will be illustrated by a slight outline of this singular affection.

The first degree of somnambulism generally shows itself by a propensity to talk during sleep;—the per-

son giving a full and connected account of what passes before him in dreams, and often revealing his own secrets or those of his friends. Walking during sleep is the next degree, and that from which the affection derives its name. The phenomena connected with this form are familiar to every one. The individual gets out of bed; dresses himself; if not prevented, goes out of doors; walks, frequently over dangerous places in safety; sometimes escapes by a window, and gets to the roof of a house; after a considerable interval, returns and goes to bed; and all that has passed conveys to his mind merely the impression of a dream. A young nobleman, mentioned by Horstius, living in the citadel of Breslau, was observed by his brother, who occupied the same room, to rise in his sleep, wrap himself in a cloak, and escape by a window to the roof of the building. He there tore in pieces a magpie's nest, wrapped the young birds in his cloak, returned to his apartment, and went to bed. In the morning, he mentioned the circumstances as having occurred in a dream, and could not be persuaded that there had been any thing more than a dream, till he was shown the magpies in his cloak. Dr. Prichard mentions a man who rose in his sleep, dressed himself, saddled his horse, and rode to the place of a market which he was in the habit of attending once every week: and Martinet mentions a man who was accustomed to rise in his sleep, and pursue his business as a saddler. An

American farmer, mentioned by Professor Upham, rose in his sleep, went to his barn, and threshed out in the dark five bushels of rye, separating the grain from the straw with the greatest correctness. There are many instances on record of persons composing during the state of somnambulism; as of boys rising in their sleep, and finishing their tasks which they had left incomplete. A gentleman, at one of the foreign universities, had been very intent during the day in the composition of some verses which he had not been able to complete: during the following night he rose in his sleep, and finished his composition; then expressed great exultation, and returned to bed.

I have received, from an eminent medical gentleman in London, a case presenting some interesting features, which occurred in the person of a young man, residing in his house as a pupil. This young gentleman was a zealous botanist, and had lately received the highest botanical prize from a public institution. One night, about an hour after he had gone to bed, after his return from a long botanical excursion, his master, who was sitting in a room below, heard a person coming down stairs with a heavy measured step, and, on going into the passage, found his pupil, with nothing on him but his hat and his shirt, his tin case swung across his shoulders, and a large stick in his hand. "His eyes," says my informer, "were more open than natural, but I ob-

served he never directed them to me, or to the candle which I held. While I was contemplating the best method of getting him to bed again, he commenced the following dialogue: 'Are you going to Greenwich, Sir?' 'Yes, Sir.' 'Going by water, Sir?' 'Yes, Sir.' 'May I go with you, Sir?' 'Yes, Sir; but I am going directly, therefore please to follow me.' Upon this I walked up to his room, and he followed me without the least error in stepping up the stairs. At the side of his bed, I begged he would get into the boat, as I must be off immediately. I then removed the tin case from his shoulders, his hat dropped off, and he got into bed, observing he knew my face very well,—he had often seen me at the river side." A long conversation then ensued between him and the supposed boatman, in which he understood all that was said to him, and answered quite correctly respecting botanical excursions to Greenwich made by the professor of botany and his pupils; and named a rare plant he had lately found, of which the superintendent of the botanic garden had seen only one specimen in his life, and the professor only two. After some farther conversation, he was asked whether he knew who had gained the highest botanical prize, when he named a gentleman, but did not name himself. "Indeed!" was the reply; "did he gain the highest prize?" To this he made no answer. He was then asked, "do you know a Mr.——," naming himself; after much hesitation, he replied,

"if I must confess it, my name is ——." This conversation lasted three quarters of an hour, during which time he never made an irrelevant answer, and never hesitated, except about the prize and his own name. He then lay down in bed, saying he felt tired, and would lie upon the grass till the professor came. But he soon sat up again, and held a long conversation with another gentleman who then came into the room, when he again understood every thing that was said to him, and answered readily and correctly, sometimes uttering long sentences without the least hesitation. After a conversation of about an hour, he said, "it is very cold on this grass, but I am so tired, I must lie down." He soon after lay down, and remained quiet the rest of the night. Next morning he had not the least recollection of what had passed, and was not even aware of having dreamt of any thing.

In these common cases the affection occurs during ordinary sleep; but a condition very analogous is met with, coming on in the day-time, in paroxysms, during which the person is affected in the same manner as in the state of somnambulism, particularly with an insensibility to external impressions;—this presents some singular phenomena. These attacks in some cases come on without any warning; in others, they are preceded by noise or a sense of confusion in the head. The individuals then become more or less abstracted, and are either unconscious of any exter-

nal impression, or very confused in their notions of external things. They are very frequently able to talk in an intelligible and consistent manner, but always in reference to the impression which is present in their own minds. They, in some cases, repeat long pieces of poetry, often more correctly than they can do in their waking state, and not unfrequently things which they could not repeat in their state of health, or of which they were supposed to be entirely ignorant. In other cases, they hold conversation with imaginary beings, or relate circumstances or conversations which occurred at remote periods, and which they were supposed to have forgotten. Some have been known to sing in a style far superior to any thing they could do in their waking state; and there are some well-authenticated instances of persons in this condition expressing themselves correctly, in languages with which they were imperfectly acquainted. Some years ago I had under my care a young lady, who was liable to an affection of this kind, which came on repeatedly during the day, and continued from ten minutes to an hour at a time. Without any warning, her body became motionless, her eyes open, fixed, and entirely insensible; and she became totally unconscious of any external impression. She was frequently seized while playing on the piano, and continued to play over and over a part of a tune, with perfect correctness, but without advancing beyond a certain point. On one occasion, she was

seized after she had begun to play from the book a piece of music which was new to her. During the paroxysm, she continued the part which she had played, and repeated it five or six times with perfect correctness; but, on coming out of the attack, she could not play it without the book.

During the paroxysms, the individuals are, in some instances, totally insensible to any thing that is said to them; but in others, they are capable of holding conversation with another person with a tolerable degree of consistency, though they are influenced to a certain degree by their mental visions, and are very confused in their notions of external things. In many cases, again, they are capable of going on with the manual occupations in which they had been engaged before the attack. This occurred remarkably in a watchmaker's apprentice mentioned by Martinet. The paroxysms in him appeared once in fourteen days, and commenced with a feeling of heat extending from the epigastrium to the head. This was followed by confusion of thought, and this by complete insensibility; his eyes were open, but fixed and vacant, and he was totally insensible to any thing that was said to him, or to any external impression. But he continued his usual employment, and was always much astonished, on his recovery, to find the change that had taken place in his work since the commencement of the paroxysm. This case afterwards passed into epilepsy.

Some remarkable phenomena are presented by this singular affection, especially in regard to exercises of memory, and the manner in which old associations are recalled into the mind;—also in the distinct manner in which the individuals sometimes express themselves, on subjects with which they had formerly shown but an imperfect acquaintance. In some of the French cases of epidemic "extase," this has been magnified into speaking unknown languages, predicting future events, and describing occurrences of which the persons could not have possessed any knowledge. These stories seem in some cases to resolve themselves merely into embellishment of what really occurred, but in others there can be no doubt of connivance and imposture. Some facts however appear to be authentic, and are sufficiently remarkable. Two females, mentioned by Bertrand, expressed themselves during the paroxysm very distinctly in Latin. They afterwards admitted that they had some acquaintance with the language, though it was imperfect. An ignorant servant girl, mentioned by Dr. Dewar, during paroxysms of this kind, showed an astonishing knowledge of geography and astronomy; and expressed herself, in her own language, in a manner which, though often ludicrous, showed an understanding of the subject. The alternations of the seasons, for example, she explained by saying, that the earth was set *a-gee*. It was afterwards discovered that her notions on these sub-

jects had been derived from overhearing a tutor giving instructions to the young people of the family. A woman who was, some time ago, in the Infirmary of Edinburgh, on account of an affection of this kind, during the paroxysms mimicked the manner of the physicians, and repeated correctly some of their prescriptions in the Latin language.

Another very singular phenomenon, presented by some instances of this affection, is what has been called, rather incorrectly, a state of double consciousness. It consists in the individual recollecting, during a paroxysm, circumstances which occurred in a former attack, though there was no remembrance of them during the interval. This, as well as various other phenomena connected with the affection, is strikingly illustrated in a case described by Dr. Dyce of Aberdeen, in the Edinburgh Philosophical Transactions. The patient was a servant girl, and the affection began with fits of somnolency, which came upon her suddenly during the day, and from which she could, at first, be roused by shaking, or by being taken into the open air. She soon began to talk a great deal during the attacks, regarding things which seemed to be passing before her as a dream; and she was not, at this time, sensible of any thing that was said to her. On one occasion, she repeated distinctly the baptismal service of the church of England, and concluded with an extemporary prayer. In her subsequent paroxysms she

began to understand what was said to her, and to answer with a considerable degree of consistency, though the answers were generally to a certain degree influenced by her hallucinations. She also became capable of following her usual employments during the paroxysm; at one time she laid out the table correctly for breakfast, and repeatedly dressed herself and the children of the family, her eyes remaining shut the whole time. The remarkable circumstance was now discovered, that, during the paroxysm, she had a distinct recollection of what took place in former paroxysms, though she had no remembrance of it during the intervals. At one time, she was taken to church while under the attack, and there behaved with propriety, evidently attending to the preacher; and she was at one time so much affected as to shed tears. In the interval, she had no recollection of having been at church; but in the next paroxysm she gave a most distinct account of the sermon, and mentioned particularly the part of it by which she had been so much affected.

This woman described the paroxysm as coming on with a cloudiness before her eyes, and a noise in the head. During the attack, her eyelids were generally half-shut; her eyes sometimes resembled those of a person affected with amaurosis, that is, with a dilated and insensible state of the pupil, but sometimes they were quite natural. She had a dull vacant look, but, when excited, knew what was said to her, though

she often mistook the person who was speaking; and it was observed, that she seemed to discern objects best which were faintly illuminated. The paroxysms generally continued about an hour, but she could often be roused out of them; she then yawned and stretched herself, like a person awaking out of sleep, and instantly knew those about her. At one time, during the attack, she read distinctly a portion of a book which was presented to her: and she often sung, both sacred and common pieces, incomparably better, Dr. Dyce affirms, than she could do in the waking state. The affection continued to recur for about six months, and ceased when a particular change took place in her constitution.

Several points in this remarkable case will be strikingly illustrated by the following history which I have received from a lady of high intelligence, who was herself a witness of the facts she has related. A girl aged seven years, an orphan of the lowest rank, residing in the house of a farmer, by whom she was employed in tending cattle, was accustomed to sleep in an apartment separated by a very thin partition from one which was frequently occupied by an itinerant fiddler. This person was a musician of very considerable skill, and often spent a part of the night in performing pieces of a refined description; but his performance was not taken notice of by the child except as a disagreeable

noise. After a residence of six months in this family she fell into bad health, and was removed to the house of a benevolent lady, where, on her recovery after a protracted illness, she was employed as a servant. Some years after she came to reside with this lady, the most beautiful music was often heard in the house during the night, which excited no small interest and wonder in the family; and many a waking hour was spent in endeavours to discover the invisible minstrel. At length the sound was traced to the sleeping-room of the girl, who was found fast asleep, but uttering from her lips a sound exactly resembling the sweetest tones of a small violin. On farther observation it was found, that, after being about two hours in bed, she became restless and began to mutter to herself;—she then uttered sounds precisely resembling the tuning of a violin, and at length, after some prelude, dashed off into elaborate pieces of music, which she performed in a clear and accurate manner, and with a sound exactly resembling the most delicate modulations of that instrument. During the performance she sometimes stopped, made the sound of re-tuning her instrument, and then began exactly where she had stopped in the most correct manner. These paroxysms occurred at irregular intervals, varying from one to fourteen or even twenty nights; and they were generally followed by a degree of fever, and pains over various parts of her body.

After a year or two, her music was not confined to the imitation of the violin, but was often exchanged for that of a piano of a very old description which she was accustomed to hear in the house where she now lived; and she then also began to sing, imitating exactly the voices of several ladies of the family. In another year from this time she began to talk a great deal in her sleep, in which she seemed to fancy herself instructing a younger companion. She often descanted with the utmost fluency and correctness on a variety of topics, both political and religious, the news of the day, the historical parts of scripture, public characters, and particularly the characters of members of the family and their visitors. In these discussions she showed the most wonderful discrimination, often combined with sarcasm, and astonishing powers of mimicry. Her language through the whole was fluent and correct, and her illustrations often forcible and even eloquent. She was fond of illustrating her subjects by what she called a *fable*, and in these her imagery was both appropriate and elegant. "She was by no means," says my informer, "limited in her range,—Buonaparte, Wellington, Blucher, and all the kings of the earth, figured among the phantasmagoria of her brain; and all were animadverted upon with such freedom from restraint, as often made me think poor Nancy had been transported into Madame Genlis' Palace of Truth. The justness and truth of her remarks on

all subjects excited the utmost astonishment in those who were acquainted with her limited means of acquiring information." She has been known to conjugate correctly Latin verbs which she had probably heard in the school-room of the family; and she was once heard to speak several sentences very correctly in French,—at the same time stating that she heard them from a foreign gentleman whom she had met accidentally in a shop. Being questioned on this subject when awake, she remembered having seen the gentleman, but could not repeat a word of what he said. During her paroxysms it was almost impossible to awake her, and when her eyelids were raised, and a candle brought near the eye, the pupil seemed insensible to the light. For several years she was, during the paroxysms, entirely unconscious of the presence of other persons; but, about the age of sixteen, she began to observe those who were in the apartment, and she could tell correctly their numbers, though the utmost care was taken to have the room darkened. She now also became capable of answering questions that were put to her, and of noticing remarks made in her presence; and, with regard to both, she showed astonishing acuteness. Her observations indeed were often of such a nature, and corresponded so accurately with characters and events, that, by the country people, she was believed to be endowed with supernatural powers.

During the whole period of this remarkable affection, which seems to have gone on for at least ten or eleven years, she was, when awake, a dull awkward girl, very slow in receiving any kind of instruction, though much care was bestowed upon her; and, in point of intellect, she was much inferior to the other servants of the family. In particular she showed no kind of turn for music. She did not appear to have any recollection of what passed during her sleep; but, during her nocturnal ramblings, she was more than once heard to lament her infirmity of speaking in her sleep, adding how fortunate it was that she did not sleep among the other servants, as they teased her enough about it as it was. About the age of twenty-one, she became immoral in her conduct, and was dismissed from the family. Her propensity to talk in her sleep continued to the time of her dismissal, but a great change had taken place in her nocturnal conversation. It had gradually lost its acuteness and brilliancy, and latterly became the mere babblings of a vulgar mind, often mingled with insolent remarks against her superiors, and the most profane scoffing at morality and religion. It is believed that she afterwards became insane.

To this remarkable history I shall only add a short account of another servant girl, whose case I have received from her master, a most intelligent

clergyman. This woman was very much addicted to talking in her sleep ; and, after some observation, it was discovered, that, in doing so, she went over all the transactions of the preceding day; every thing, especially, that she had herself said, was distinctly repeated in the order in which she had spoken it. In general she commenced immediately after she had fallen asleep, and began by repeating the first words she had spoken in the morning ; and then went through the other conversation of the day, adapting her tone and manner to the real occurrences. Thus, whether she had called aloud to a person at a distance, or whispered something which she did not wish to be overheard,—whether she had laughed or sung, every thing was repeated in the order and in the tone of voice in which it had actually occurred. In repeating conversations with others, she regularly left intervals in her discourse corresponding to the period when the other party was supposed to be replying ; and she also left intervals between different conversations, shorter in reality, but corresponding in relative length to the intervals which had in fact taken place. Thus, if she had been for two hours without conversing with any other person, the interval in her nocturnal conversation was about ten minutes. In this manner she generally required about two hours to rehearse the occurrences of the day. She was scarcely ever known to repeat any thing she had read ; but she occasionally repeated psalms, as

if she had been teaching them to a child; and it was observed that she repeated them much more correctly than she could do when awake. Along with these peculiarities, she exhibited the more common characters of somnambulism, frequently rising in her sleep, and pursuing her ordinary occupations in the kitchen, and even out of doors. On one occasion she awoke in the act of mounting a horse at the stable door,—and, at another time, was roused by spraining her ancle while cutting grass in a ditch, at some distance from the house. These occupations were observed to have a relation to her engagements during the day, being either a repetition of something she had done, or the accomplishment of what she had intended to do, but had been prevented from performing; and sometimes it appeared to be something which she meant to do at the earliest hour on the following day. These various peculiarities had been matter of interesting observation for a considerable time, when she at length fell into a state of continued unconsciousness to external things, which went on for three days, during which time she attended to all her usual occupations. This began on a Sunday, and continued to the Wednesday. On that day, her master met her returning from an outhouse, carrying a number of eggs, when he determined to attempt rousing her by shouting loudly in her ear. On his doing so, she awoke as from a sleep, and spoke to him sensibly,—but could give no ac-

count of the eggs, and could scarcely be persuaded that the day was not Sunday. In an hour she relapsed into the unconscious state, and was again roused in the same manner; but, after some farther experiments, this expedient failed, in consequence of which she was taken to the house of her parents, and did not recover entirely for several weeks. After this her former peculiarities became less remarkable, and gradually ceased.

Among the histories of this singular affection, I have not found any thing resembling the nocturnal conversation which occurred in this case. One of a different kind, and also very remarkable, is mentioned by Von Hoven, as quoted by Treviranus. It occurred in a young man, a student, who, as soon as he fell asleep, began to speak aloud. The subject of his discourse was found to be a continued and connected dream, which each night began exactly where it had left off on the preceding. It had no relation to any thing that had occurred to him in his waking state, and when awake he had no recollection of his dream. The affection continued about three weeks.

Another very remarkable modification of this affection is referred to by Mr. Combe, as described by Major Elliot, Professor of Mathematics in the United States' Military Academy at West Point. The patient was a young lady of cultivated mind, and the affection began with an attack of somnolency, which was protracted several hours beyond the

usual time. When she came out of it, she was found to have lost every kind of acquired knowledge. She immediately began to apply herself to the first elements of education, and was making considerable progress, when, after several months, she was seized with a second fit of somnolency. She was now at once restored to all the knowledge which she possessed before the first attack, but without the least recollection of any thing that had taken place during the interval. After another interval, she had a third attack of somnolency, which left her in the same state as after the first. In this manner, she suffered these alternate conditions for a period of four years, with the very remarkable circumstance,—that, during the one state, she retained all her original knowledge, but, during the other, that only which she had acquired since the first attack. During the healthy interval, for example, she was remarkable for the beauty of her penmanship, but, during the paroxysm, wrote a poor awkward hand. Persons introduced to her during the paroxysm, she recognised only in a subsequent paroxysm, but not in the interval; and persons whom she had seen for the first time during the healthy interval, she did not recognise during the attack.

Of the remarkable condition of the mental faculties exemplified in these cases, it is impossible to give any explanation. Something very analogous to it occurs in other affections, though in a smaller degree. Dr. Prichard mentions a lady who was liable

to sudden attacks of delirium, which, after continuing for various periods, went off as suddenly, leaving her at once perfectly rational. The attack was often so sudden, that it commenced while she was engaged in interesting conversation; and, on such occasions, it happened, that, on her recovery from the state of delirium, she instantly recurred to the conversation she had been engaged in at the time of the attack, though she had never referred to it during the continuance of the affection. To such a degree was this carried, that she would even complete an unfinished sentence. During the subsequent paroxysm, again, she would pursue the train of ideas which had occupied her mind in the former. Mr. Combe also mentions a porter, who, in a state of intoxication, left a parcel at a wrong house, and, when sober, could not recollect what he had done with it. But the next time he got drunk, he recollected where he had left it, and went and recovered it.

On this curious subject, I shall only add a remarkable case which I have received from a most respectable clergyman in England, and the facts of which occurred under his own immediate observation. A young woman of the lower rank, aged 19, became insane; but was gentle, and applied herself eagerly to various occupations. Before her insanity she had been only learning to read, and to form a few letters; but during her insanity she taught herself to write perfectly, though all attempts of others to teach her

failed, as she could not attend to any person who tried to do so. She has intervals of reason, which have frequently continued three weeks, sometimes longer. During these, she can neither read nor write; but, immediately on the return of her insanity, she recovers her power of writing, and can read perfectly.

III.—INSANITY.

Reason we have considered to be that exercise of mind by which we compare facts with each other, and mental impressions with external things. By means of it we are enabled to judge of the relations of facts, and of the agreement between our impressions and the actual state of things in the external world. We have seen also that peculiar power, which is possessed by the mind in a healthy state, of arresting or changing the train of its thoughts at pleasure,—of fixing the attention upon one, or transferring it to another,—of changing the train into something which is analogous to it, or of dismissing it altogether. This power is, to a greater or less degree, lost in insanity; and the result is one of two conditions. Either the mind is entirely under the influence of a single impression, without the power of varying or dismissing it, and comparing it with other impressions; or it is left at the mercy of

a chain of impressions which have been set in motion, and which succeed one another according to some principle of connexion, over which the individual has no control. In both cases, the mental impression is believed to have a real and present existence in the external world; and this false belief is not corrected by the actual state of things as they present themselves to the senses, or by any facts or considerations which can be communicated by other sentient beings. Of the cause of this remarkable deviation from the healthy state of the mental functions we know nothing. We may trace its connexion with concomitant circumstances in the bodily functions, and we may investigate certain effects which result from it; but the nature of the change, and the manner in which it is produced, are among those points in the arrangements of the Almighty Creator which entirely elude our researches.

It appears, then, that there is a remarkable analogy between the mental phenomena in insanity and in dreaming; and that the leading peculiarities of both these conditions are referable to two heads:

1. The impressions which arise in the mind are believed to be real and present existences, and this belief is not corrected by comparing the conception with the actual state of things in the external world.

2. The chain of ideas or images which arise follow one another according to certain associations,

over which the individual has no control; he cannot, as in a healthy state, vary the series or stop it at his will.

In the numerous forms of Insanity, we shall see these characters exhibited in various degrees; but we shall be able to trace their influence in one degree or another through all the modifications; and, in the higher states, or what we call perfect mania, we see them exemplified in the same complete manner as in dreaming. The maniac fancies himself a king, possessed of boundless power, and surrounded by every form of earthly splendour; and, with all his bodily senses in their perfect exercise, this hallucination is in no degree corrected by the sight of his bed of straw and all the horrors of his cell.

From this state of perfect mania, the malady is traced through numerous gradations, to forms which exhibit slight deviations from the state of a sound mind. But they all show, in one degree or another, the same leading characters, namely, that some impression has taken possession of the mind, and influences the conduct, in a manner in which it would not affect a sound understanding;—and that this is not corrected by facts and considerations which are calculated immediately to remove the erroneous impression. The lower degrees of this condition we call eccentricity; and, in common language, we often talk of a man being crazed upon a particular subject. This consists in giving to an impression or

a fancy undue and extravagant importance, without taking into account other facts and considerations which ought to be viewed in connexion with it. The man of this character acts with promptitude upon a single idea, and seems to perceive nothing that interferes with it;—he forms plans, and sees only important advantages which would arise from the accomplishment of them, without perceiving difficulties or objections. The impression itself may be correct, but an importance is attached to it disproportioned to its true tendency; or consequences are deduced from, and actions founded upon it, which would not be warranted in the estimate of a sound understanding. It is often difficult to draw the line between certain degrees of this condition and insanity; and, in fact, they very often pass into each other. This will be illustrated by the following example.

A clergyman in Scotland, after showing various extravagances of conduct, was brought before a jury to be cognosced; that is, by a form of Scotch law, to be declared incapable of managing his own affairs, and placed under the care of trustees. Among the acts of extravagance alleged against him was, that he had burnt his library. When he was asked by the jury what account he could give of this part of his conduct, he replied in the following terms:—"In the early part of my life I had imbibed a liking for a most unprofitable study, namely, con-

troversial divinity. On reviewing my library, I found a great part of it to consist of books of this description, and I was so anxious that my family should not be led to follow the same pursuit, that I determined to burn the whole." He gave answers equally plausible to questions which were put to him, respecting other parts of his conduct; and the result was, that the jury found no sufficient ground for cognoscing him; but, in the course of a fortnight from that time, he was in a state of decided mania.

It is therefore incorrect to say of insanity, as has been said, that the maniac reasons correctly upon unsound data. His data may be unsound, that is, they may consist of a mental image which is purely visionary, as in the state of perfect mania lately referred to; but this is by no means necessary to constitute the disease; for his premises may be sound, though he distorts them in the results which he deduces from them. This was remarkably the case in the clergyman now mentioned. His premises were sound and consistent, namely, his opinion of the unprofitable nature of the study of controversial divinity, and his anxiety that his family should not prosecute it. His insanity consisted in the rapid and partial view which he took of the means for accomplishing his purpose,—burning his whole library. Had he sold his library, or that part of it which consisted of controversial divinity, the measure would have been in correct re-

lation to the object which he had in view; and if we suppose that, in going over his library, he had met with some books of an immoral tendency,—to have burnt these, to prevent them from falling into the hands of any individual, would have been the act both of a wise and a virtuous man. But to burn his whole library, to prevent his family from studying controversial divinity, was the suggestion of insanity,—distorting entirely the true relation of things, and carrying an impression, in itself correct, into consequences which it in no degree warranted.

A remarkable peculiarity, in many cases of insanity, is a great activity of mind, and rapidity of conception,—a tendency to seize rapidly upon incidental or partial relations of things,—and often a fertility of imagination, which changes the character of the mind, sometimes without remarkably distorting it. The memory, in such cases, is entire, and even appears more ready than in health; and old associations are called up with a rapidity quite unknown to the individual in his sound state of mind. A gentleman, mentioned by Dr. Willis, who was liable to periodical attacks of insanity, said that he expected the paroxysms with impatience, because he enjoyed during them a high degree of pleasure. "Every thing appeared easy to me. No obstacles presented themselves, either in theory or practice. My memory acquired, all of a sudden, a singular

degree of perfection. Long passages of Latin authors occurred to my mind. In general I have great difficulty in finding rhythmical terminations, but then I could write verses with as great facility as prose." "I have often," says Pinel, "stopped at the chamber-door of a literary gentleman, who, during his paroxysms, appears to soar above the mediocrity of intellect that was familiar to him, solely to admire his newly-acquired powers of eloquence. He declaimed upon the subject of the Revolution with all the force, the dignity, and the purity of language that this very interesting subject could admit of. At other times he was a man of very ordinary abilities."

It is this activity of thought, and readiness of association, that gives to maniacs of a particular class an appearance of great ingenuity and acuteness. Hence they have been said to reason acutely upon false premises; and one author has even alleged, that a maniac of a particular kind would make an excellent logician. But to say that a maniac reasons either soundly or acutely, is an abuse of terms. He reasons plausibly and ingeniously; that is, he catches rapidly incidental and partial relations; and, from the rapidity with which they are seized upon, it may sometimes be difficult at first to detect their fallacy. He might have made a skilful logician of the schools, whose ingenuity consisted in verbal disputes, and frivolous distinctions; but he never can be consider-

ed as exercising that sound logic, the aim of which is to trace the real relations of things, and the object of which is truth.

The peculiar character of insanity, in all its modifications, appears to be, that a certain impression has fixed itself upon the mind, in such a manner as to exclude all others; or to exclude them from that influence which they ought to have on the mind in its estimate of the relations of things. This impression may be entirely visionary and unfounded; or it may be in itself true, but distorted in the applications which the unsound mind makes of it, and the consequences which are deduced from it. Thus, a man of wealth fancies himself a beggar, and in danger of dying from hunger. Another takes up the same impression, who has, in fact, sustained some considerable loss. In the one, the impression is entirely visionary, like that which might occur in a dream. In the other, it is a real and true impression, carried to consequences which it does not warrant.

There is great variety in the degree to which the mind is influenced by the erroneous impression. In some cases it is such as entirely excludes all others, even those immediately arising from the evidence of the senses, as in the state of perfect mania formerly referred to. In many others, though in a less degree than this, it is such as to change the whole character. The particular manner, in which this more immediately appears, will depend of course up-

on the nature of the erroneous impression. A person, formerly most correct in his conduct and habits, may become obscene and blasphemous; accustomed occupations become odious to him; the nearest and most beloved friends become objects of his aversion and abhorrence. Much interesting matter of observation often arises out of these peculiarities; and it is no less interesting to observe, during convalescence, the gradual return to former habits and attachments. A young lady, mentioned by Dr. Rush, who had been for some time confined in a lunatic asylum, had shown, for several weeks, every mark of a sound mind, except one,—she hated her father. At length, she one day acknowledged, with pleasure, the return of her filial attachment, and was soon after discharged, entirely recovered. Even when the erroneous impression is confined to a single subject, it is remarkable how it absorbs the attention, to the exclusion of other feelings of a most intense and powerful kind. I knew a person of wealth, who had fallen into a temporary state of melancholic hallucination, in connexion with a transaction in business which he regretted having made, but of which the real effect was of a trifling nature. While in this situation, the most severe distress occurred in his family, by the death of one of them under painful circumstances, without his being affected by it in the slightest degree.

The uniformity of the impressions of maniacs is

indeed so remarkable, that it has been proposed by Pinel, as a test for distinguishing real from feigned insanity. He has seen melancholics confined in the Bicètre, for twelve, fifteen, twenty, and even thirty years; and through the whole of that period, their hallucination has been limited to one subject. Others, after a course of years, have changed from one hallucination to another. A man, mentioned by him, was for eight years constantly haunted with the idea of being poisoned; he then changed his hallucination, became sovereign of the world and extremely happy,, and thus continued for four years.

The sudden revival of old impressions, after having been long entirely suspended by mental hallucination, presents some of the most singular phenomena connected with this subject. Dr. Prichard mentions an interesting case of this kind from the American Journal of Science. A man had been employed for a day with a beetle and wedges in splitting pieces of wood for erecting a fence. At night before going home, he put the beetle and wedges into the hollow of an old tree, and directed his sons, who had been at work in an adjoining field, to accompany him next morning to assist in making the fence. In the night he became maniacal, and continued in a state of insanity for several years, during which time his mind was not occupied with any of the subjects with which he had been conversant when in health. After several years his reason returned suddenly, and the first ques-

tion he asked was, whether his sons had brought home the beetle and wedges. They, being afraid of entering upon any explanation, only said, that they could not find them; on which he rose from his bed, went to the field where he had been at work so many years before, and found, where he had left them, the wedges, and the iron rings of the beetle, the wooden part being entirely mouldered away.— A lady, mentioned in the same journal, had been intensely engaged for some time, in a piece of needlework. Before she had completed it, she became insane, and continued in that state for seven years, after which her reason returned suddenly. One of the first questions she asked related to her needlework, though she had never alluded to it, so far as was recollected, during her illness. I have formerly alluded to the remarkable case of a lady, who was liable to periodical paroxysms of delirium, which often attacked her so suddenly, that, in conversation, she would stop in the middle of a story, or even of a sentence, and branch off into the subject of her hallucination. On the return of her reason, she would resume the conversation in which she was engaged at the time of the attack, beginning exactly where she had left off, though she had never alluded to it during the delirium; and, on the next attack of delirium, she would resume the subject of hallucination, with which she had been occupied at the conclusion of the former paroxysm. In some cases there

is a total loss of the impression of time respecting the period occupied by the attack, which on the partial recovery of the patient shows itself by singular fancies. A man, mentioned by Haslam, maintained that he had seen the seed sown in a particular field, and on passing it again three or four days after, saw the reapers at work cutting down the corn. The interval, of which he had thus lost entirely the impression, had been spent in a state of furious insanity; —from this he had in so far recovered, as, by a mere act of observation and memory, to form this notion, but not so far as, by an act of comparison or judgment, to perceive its absurdity.

Among the most singular phenomena connected with insanity, we must reckon those cases in which the hallucination is confined to a single point, while, on every other subject, the patient speaks and acts like a rational man; and he often shows the most astonishing power of avoiding the subject of his disordered impression, when circumstances make it advisable for him to do so. A man mentioned by Pinel, who had been for some time confined in the Bicètre, was, on the visitation of a commissary, ordered to be discharged as perfectly sane, after a long conversation in which he had conducted himself with the greatest propriety. The officer prepared the *procès verbal* for his discharge, and gave it him to put his name to it, when he subscribed himself Jesus Christ, and then indulged in all the reveries con-

nected with that delusion. Lord Erskine gives a very remarkable history of a man, who indicted Dr. Monro for confining him without cause in a mad-house. He underwent the most rigid examination by the counsel of the defendant, without discovering any appearance of insanity, until a gentleman came into court, who desired a question to be put to him respecting a princess with whom he had corresponded in cherry-juice. He immediately talked about the princess in the most insane manner, and the cause was at an end. But, this having taken place in Westminster, he commenced another action in the city of London, and, on this occasion, no effort could induce him to expose his insanity; so that the cause was dismissed only by bringing against him the evidence taken at Westminster. On another occasion, Lord Erskine examined a gentleman, who had indicted his brother for confining him as a maniac, and the examination had gone on for great part of a day, without discovering any trace of insanity. Dr. Sims then came into court, and informed the counsel, that the gentleman considered himself as the Saviour of the world. A single observation addressed to him in this character showed his insanity, and put an end to the cause. Many similar cases are on record. Several years ago a gentleman in Edinburgh, who was brought before a jury to be cognosced, defeated every attempt of the opposite counsel to discover any trace of insanity, until a gentleman came into court,

who ought to have been present at the beginning of the case, but had been accidentally detained. He immediately addressed the patient by asking him what were his latest accounts from the planet Saturn, and speedily elicited ample proofs of insanity.

Of the nature and cause of that remarkable condition of the mental faculties which gives rise to the phenomena of insanity, we know nothing. We can only observe the facts, and endeavour to trace among them some general principle of connexion; and even in this there is great difficulty, chiefly from the want of observations particularly directed to this object. There would be much interesting subject of inquiry, in tracing the origin of the particular chain of ideas which arise in individual cases of insanity; and likewise the manner in which similar impressions are modified in different cases, either by circumstances in the natural disposition of the individual, or by the state of his bodily functions at the time. From what has been observed, it seems probable, that, in both these respects, there is preserved a remarkable analogy to dreaming. The particular hallucinations may be chiefly referred to the following heads:—

I. Propensities of character, which had been kept under restraint by reason or by external circumstances, and old habits which had been subdued or restrained, developing themselves without control, and leading

the mind into trains of fancies arising out of them. Thus a man of an aspiring ambitious character may imagine himself a king or great personage; while, in a man of a timid, suspicious disposition, the mind may fix upon some supposed injury, or loss either of property or reputation.

II. Old associations recalled into the mind, and mixed up perhaps with more recent occurrences, in the same manner as we often see in dreaming. A lady, mentioned by Dr. Gooch, who became insane in consequence of an alarm from a house on fire in her neighbourhood, imagined that she was the Virgin Mary, and had a luminous halo round her head.

III. Visions of the imagination which have formerly been indulged in, of that kind which we call waking dreams, or castle-building, recurring to the mind in this condition, and now believed to have a real existence. I have been able to trace this source of the hallucination. In one case, for example, it turned upon an office to which the individual imagined he had been appointed; and it was impossible to persuade him to the contrary, or even that the office was not vacant. He afterwards acknowledged that his fancy had at various times been fixed upon that appointment, though there were no circumstances that warranted him in entertaining any ex-

pectation of it. In a man mentioned by Dr. Morison, the hallucination turned upon circumstances which had been mentioned when his fortune was told by a gipsy.

IV. Bodily feelings giving rise to trains of associations, in the same extravagant manner as in dreaming. A man, mentioned by Dr. Rush, imagined that he had a Caffre in his stomach, who had got into it at the Cape of Good Hope, and had occasioned him a constant uneasiness ever since. In such a case, it is probable that there had been some fixed or frequent uneasy feeling at the stomach, and that, about the commencement of his complaint, he had been strongly impressed by some transaction in which a Caffre was concerned.

V. There seems reason to believe that the hallucinations of the insane are often influenced by a certain sense of the new and singular state in which their mental powers really are, and a certain feeling, though confused and ill-defined, of the loss of that power over their mental processes, which they possessed when in health. To a feeling of this kind, I am disposed to refer the impression, so common among the insane, of being under the influence of some supernatural power. They sometimes represent it as the working of an evil spirit, and sometimes as witchcraft. Very often they describe it as

a mysterious and undue influence which some individual has obtained over them; and this influence they often represent as being carried on by means of electricity, galvanism, or magnetism. This impression being once established of a mysterious agency, or a mysterious change in the state and feelings of the individual, various other incidental associations may be brought into connexion with it, according as particular circumstances have made a deep impression on the mind. A man mentioned by Pinel, who had become insane during the French revolution, imagined that he had been guillotined,—that the judges had changed their mind after the sentence was executed, and had ordered his head to be put on again; and that the persons intrusted with this duty had made a mistake, and put a wrong head upon him. Another individual, mentioned by Dr. Conolly, imagined that he had been hanged, and brought to life by means of galvanism; and that the whole of his life had not been restored to him.

Out of the same undefined feeling, of mental processes very different from those of the healthy state, probably arises another common impression, namely, of intercourse with spiritual beings, visions and revelations. The particular character of these, perhaps, depends on some previous process of the mind, or strong propensity of the character; and the notion of a supernatural revelation may proceed from a certain feeling of the new and peculiar man-

ner in which the impression is fixed upon the mind. A priest mentioned by Pinel imagined that he had a commission from the Virgin Mary, to murder a certain individual, who was accused of infidelity. It is probable that the patient, in this case, had been naturally of a violent and irascible disposition ; that he had come in contact with this person, and had been annoyed and irritated by infidel sentiments uttered by him ; and that a strong feeling in regard to him had thus been excited in his mind, which, in his insane state, was formed into this vision.

When the mental impression is of a depressing character, that modification of the disease is produced which is called melancholia. It seems to differ from mania merely in the subject of hallucination, and accordingly we find the two modifications pass into each other,—the same patient being, at one time, in a state of melancholic depression, and at another, of maniacal excitement. It is, however, more common for the melancholic to continue in the state of depression, and generally in reference to one subject; and the difference between him and the exalted maniac does not appear to depend upon the occasional cause. For we sometimes find persons who have become deranged, in connexion with overwhelming calamities, show no depression, nor even a recollection of their distresses, but the highest state of exalted mania. The difference appears to

depend chiefly upon constitutional peculiarities of character.

The most striking peculiarity of melancholia is the prevailing propensity to suicide; and there are facts connected with this subject, which remarkably illustrate what may be called the philosophy of insanity. When the melancholic hallucination has fully taken possession of the mind, it becomes the sole object of attention, without the power of varying the impression, or of directing the thoughts to any facts or considerations calculated to remove or palliate it. The evil seems overwhelming and irremediable, admitting neither of palliation, consolation, nor hope. For the process of mind calculated to diminish such an impression, or even to produce the hope of a palliation of the evil, is precisely that exercise of mind which, in this singular condition, is lost or suspended;—namely, a power of changing the subject of thought, of transferring the attention to other facts and considerations, and of comparing the mental impression with these, and with the actual state of external things. Under such a conviction of overwhelming and hopeless misery, the feeling naturally arises of life being a burden, and this is succeeded by a determination to quit it. When such an association has once been formed, it also fixes itself upon the mind, and fails to be corrected by those considerations which ought to remove it. That it is in this manner the impression arises, and not from

any process analogous to the determination of a sound mind, appears, among other circumstances, from the singular manner in which it is often dissipated; namely, by the accidental production of some new impression, not calculated, in any degree, to influence the subject of thought, but simply to give a momentary direction of the mind to some other feeling. Thus, a man mentioned by Pinel had left his house in the night, with the determined resolution of drowning himself, when he was attacked by robbers. He did his best to escape from them, and, having done so, returned home, the resolution of suicide being entirely dissipated. A woman, mentioned, I believe, by Dr. Burrows, had her resolution changed in the same manner, by something falling on her head, after she had gone out for a similar purpose.

A very singular modification occurs in some of these cases. With the earnest desire of death, there is combined an impression of the criminality of suicide; but this, instead of correcting the hallucination, only leads to another and most extraordinary mode of effecting the purpose; namely, by committing murder, and so dying by the hand of justice. Several instances are on record, in which this remarkable mental process was distinctly traced and acknowledged; and in which there was no mixture of malice against the individuals who were murdered. On the contrary, these were generally children; and, in one of the cases, the maniac distinctly avowed his

resolution to commit murder, with the view of dying by a sentence of law, and at the same time his determination, that his victim should be a child,—as he should thus avoid the additional guilt of sending a person out of the world in a state of unrepented sin. The mental process, in such a case, presents a most interesting subject of reflection. It appears to be purely a process of association, without the power of reasoning. I should suppose, that there had been at a former period, during a comparatively healthy state of the mental faculties, a repeated contemplation of suicide, which had been always checked by an immediate conviction of its dreadful criminality. In this manner, a strong connexion had been formed, which, when the idea of suicide afterwards came into the mind, during the state of insanity, led to the impression of its heinousness, not by a process of reasoning, but by simple association. The subsequent steps are the distorted reasonings of insanity, mixed with some previous impression of the safe condition of children dying in infancy. This explanation, I think, is strongly countenanced by the consideration, that, had the idea of the criminality of suicide been in any degree a process of reasoning, a corresponding conviction of the guilt of murder must have followed it. I find, however, one case which is at variance with this hypothesis. The reasoning of that unfortunate individual was, that if he committed murder and died by the hand of justice, there would

be time for making his peace with the Almighty between the crime and his execution, which would not be the case if he should die by suicide. This was a species of reasoning,—but it was purely the reasoning of insanity.

Attempts have been made to refer insanity to disease of bodily organs, but hitherto without much success. In some instances, we are able to trace a connexion of this kind; but, in a large proportion, we can trace no bodily disease. On this subject, as well as various other points connected with the phenomena of insanity, extensive and careful observation will be required, before we shall be entitled to advance to any conclusions. In regard to what have been called the moral causes of insanity, also, I suspect there has been a good deal of fallacy, arising from considering as a moral cause, what was really a part of the disease. Thus, we find so many cases of insanity referred to erroneous views of religion, so many to love, so many to ambition, &c. But, perhaps it may be doubted whether that which was, in these cases, considered as the cause, was not rather, in many instances, a part of the hallucination. This, I think, applies in a peculiar manner to the important subject of religion, which, by a common but very loose mode of speaking, is often mentioned as a frequent cause of insanity. When there is a constitutional tendency to insanity, or to melancholy, one of

its leading modifications, every subject is distorted to which the mind can be directed, and none more frequently or more remarkably than the great questions of religious belief. But this is the effect, not the cause; and the frequency of this kind of hallucination, and the various forms which it assumes, may be ascribed to the subject being one to which the minds of all men are so naturally directed in one degree or another, and of which no man living can entirely divest himself. Even when the mind does give way under a great moral cause, such as overwhelming misfortunes, we often find that the hallucination does not refer to them, but to something entirely distinct: striking examples of this are mentioned by Pinel.

Insanity is, in a large portion of cases, to be traced to hereditary predisposition; and this is often so strong, that no prominent moral cause is necessary for the production of the disease, and probably no moral treatment would have any effect in preventing it. We must however suppose, that, where a tendency to insanity exists, there may be, in many cases, circumstances in mental habits or mental discipline, calculated either to favour or to counteract the tendency. Insanity frequently commences with a state in which particular impressions fix themselves upon the mind, in a manner entirely disproportioned to their true relations; and in which these false impressions fail to be corrected by the judgment, comparing them

with other impressions, or with external things. In so far as mental habits may be supposed to favour or promote such a condition, this may be likely to result from allowing the mind to wander away from the proper duties of life, or to luxuriate amid scenes of the imagination; and permitting mental emotions, of whatever kind, to be excited in a manner disproportioned to the true relations of the objects which give rise to them;—in short, from allowing the mind to ramble among imaginary events, or to be led away by slight and casual relations, instead of steadily exercising the judgment in the investigation of truth. We might refer to the same head habits of distorting events, and of founding upon them conclusions which they do not warrant. These, and other propensities and habits of a similar kind, constitute what is called an ill-regulated mind. Opposed to it is that habit of cool and sound exercise of the understanding, by which events are contemplated in their true relations and consequences, and mental emotions arise out of them such as they are really calculated to produce. Every one must be familiar with the difference which exists among different individuals, in this respect; and even in the same individual at different times. We trace the influence of the principle in the impression which is made by events coming upon us suddenly and unexpectedly; and the manner in which the emotion is gradually brought to its proper bearings, as the mind accom-

modates itself to the event, by contemplating it in its true relations. In such a mental process as this, we observe the most remarkable diversities among various individuals. In some, the mind rapidly contemplates the event in all its relations, and speedily arrives at the precise impression or emotion which it is in truth fitted to produce. In others, this is done more slowly, perhaps more imperfectly, and probably not without the aid of suggestions from other minds; while, in some, the first impression is so strong and so permanent, and resists in such a manner those considerations which might remove or moderate it, that we find difficulty in drawing the line between it and that kind of false impression which constitutes the lower degree of insanity. Habits of mental application must also exert a great influence; and we certainly remark a striking difference between those who are accustomed merely to works of imagination and taste, and those whose minds have been rigidly exercised to habits of calm and severe inquiry. A fact is mentioned by Dr. Conolly, which, if it shall be confirmed by farther observation, would lead to some most important reflections. He states that it appears from the registers of the Bicètre, that maniacs of the more educated classes consist almost entirely of priests, artists, painters, sculptors, poets, and musicians; while no instance, it is said, occurs of the disease in naturalists, physicians, geometricians, or chemists.

The higher degrees of insanity are in general so distinctly defined in their characters, as to leave no room for doubt in deciding upon the nature of the affection. But it is otherwise in regard to many of the lower modifications; and great discretion is often required, in judging whether the conduct of an individual, in particular instances, is to be considered as indicative of insanity. This arises from the principle, which must never be lost sight of, that, in such cases, we are not to decide simply from the facts themselves, but by their relation to other circumstances, and to the previous habits and character of the individual. There are many peculiarities and eccentricities of character which do not constitute insanity; and the same peculiarities may afford reason for suspecting insanity in one person and not in another;—namely, when in the former, they have appeared suddenly, and are much opposed to his previous uniform character; while, to the latter they have been long known to be habitual and natural. Thus, acts of thoughtless prodigality and extravagance may, in one person, be considered entirely in accordance with his uniform character; while the same acts, committed by a person formerly distinguished by sedate and prudent conduct, may give good ground for suspecting insanity,—and in fact constitute a form in which the affection very often appears. In ordinary cases of insanity, a man's conduct is to be tried by a comparison with the

average conduct of other men; but, in many of the cases now referred to, he must be compared with his former self.

Another caution is to be kept in mind, respecting the mental impressions of the individual in these slight or suspected cases of insanity;—that an impression, which gives reason for suspecting insanity in one case, because we know it to be entirely unfounded and imaginary, may allow of no such conclusion in another, in which it has some reasonable or plausible foundation. Insane persons indeed often relate stories which hang together so plausibly and consistently, that we cannot say whether we are to consider them as indicative of insanity, until we have ascertained whether they have any foundation, or are entirely imaginary. In one instance which was referred to in the discussions respecting a late remarkable case, the principal fact alleged against the individual was, his having taken up a suspicion of the fidelity of his wife. But it turned out to be a very general opinion among his neighbours that the impression was well founded. The same principle applies to the antipathies against intimate friends which are often so remarkable in the insane. They may be of such a nature as decidedly to mark the hallucination of insanity,—as when a person expresses a dislike to a child, formerly beloved, on the ground that he is not really his child, but an evil spirit which has assumed his form. This is clearly

insanity ; but if the antipathy be against a friend or relative, without any such reason assigned for it, we require to keep in view the inquiry, whether the impression be the result of hallucination, or whether the relative has really given any ground for it. In all slight or doubtful cases, much discretion should be used in putting an individual under restraint, and still more in immediately subjecting him to confinement in an asylum for lunatics. But there is one modification in which all such delicacy must be dispensed with,—namely, in those melancholic cases which have shown any tendency to suicide. Whenever this propensity has appeared, no time is to be lost in taking the most effectual precautions ; and the most painful consequences have very often resulted, in cases of this description, from misplaced delicacy and delay.

The subject of hallucination, in insanity, we have seen, may be either entirely imaginary and groundless, or may be a real event viewed in false relations, and carried to false consequences. This view of the subject bears upon an important practical point which has been much agitated,—the liability of maniacs to punishment ; and which has been ably and ingeniously argued by Lord Erskine, in his defence of Hatfield, who fired at his Majesty, King George III. The principle contended for by this eminent person is that when a maniac commits

a crime under the influence of an impression which is entirely visionary, and purely the hallucination of insanity, he is not the object of punishment; but that, though he may have shown insanity in other things, he is liable to punishment, if the impression under which he acted was true, and the human passion arising out of it was directed to its proper object. He illustrates this principle by contrasting the case of Hatfield with that of Lord Ferrers. Hatfield had taken a fancy that the end of the world was at hand, and that the death of his Majesty was in some way connected with important events which were about to take place. Lord Ferrers, after showing various indications of insanity, murdered a man against whom he was known to harbour deep-rooted resentment, on account of real transactions, in which that individual had rendered himself obnoxious to him. The former, therefore, is considered as an example of the pure hallucination of insanity; the latter as one of human passion founded on real events, and directed to its proper object. Hatfield, accordingly, was acquitted; but Lord Ferrers was convicted of murder, and executed. The contrast between the two cases is sufficiently striking; but it may be questioned whether it will bear all that Lord Erskine has founded upon it. There can be no doubt of the first of his propositions, that a person acting under the pure hallucination of insanity, in regard to impressions which

are entirely unfounded, is not the object of punishment. But, the converse does not seem to follow; namely, that the man becomes an object of punishment, merely because the impression was founded in fact, and because there was a human passion directed to its proper object. For it is among the characters of insanity, not only to call up impressions which are entirely visionary, but also to distort and exaggerate those which are true, and to carry them to consequences which they do not warrant in the estimation of a sound mind. A person, for instance, who has suffered a loss in business which does not affect his circumstances in any important degree, may imagine, under the influence of hallucination, that he is a ruined man, and that his family is reduced to beggary. Now, were a wealthy man, under the influence of such hallucination, to commit an outrage on a person who had defrauded him of a trifling sum, the case would afford the character mentioned by Lord Erskine,—human passion founded upon real events, and directed to its proper object: but no one, probably, would doubt for a moment, that the process was as much the result of insanity, as if the impression had been entirely visionary. In this hypothetical case, indeed, the injury, though real, is slight; but it does not appear, that the principle is necessarily affected by the injury being great, or more in relation to the result which it leads to according to the usual course of human

passion. It would appear probable, therefore, that, in deciding a doubtful case, a jury ought to be guided, not merely by the circumstances of the case itself, but by the evidence of insanity in other things. This, accordingly, appears to have been the rule on which a jury acted in another important case mentioned by Lord Erskine, in which an unfortunate female, under the influence of insanity, murdered a man who had seduced and deserted her. Here was a real injury of the highest description, and human passion founded upon it and directed to its proper object; but the jury, on proof of derangement in other things, acquitted the prisoner, who, accordingly, soon passed into a state of "undoubted and deplorable insanity." In the case of Lord Ferrers, also, it would appear, that the decision proceeded, not so much upon the principle of human passion directed to its proper object, as upon an impression, that his Lordship's previous conduct had been indicative of uncontrolled violence of temper, rather than actual insanity.

Some of the points which have been briefly alluded to, seem to bear on the practical part of this important subject,—the intellectual and moral treatment of insanity. Without entering on any lengthened discussion, some leading principles may be referred to the following heads:—

I. It will be generally admitted, that every attempt to reason with a maniac is not only fruitless, but rather tends to fix more deeply his erroneous impression. An important rule, in the management of the insane, will therefore be, to avoid every allusion to the subject of their hallucination, to remove from them every thing calculated by association to lead to it, and to separate them from scenes and persons likely to recall or keep up the erroneous impression. Hence, probably, in a great measure, arises the remarkable benefit of removing the insane from their usual residence, friends, and attendants, and placing them in new scenes, and entirely under the care of strangers. The actual effect of this measure is familiar to every one, who is in any degree conversant with the management of the insane. That the measure may have its full effect, it appears to be of importance that the patient should not, for a considerable time, be visited by any friend or acquaintance; but should be separated from every thing connected with his late erroneous associations. The danger also is well known which attends premature return to home and common associates;—immediate relapse having often followed this, in cases which had been going on for some time in the most favourable manner.

II. Occupation. This is referable to two kinds,—bodily and mental. The higher states of mania,

in general, admit of no occupation; but, on the contrary, often require coercion. A degree below this may admit of bodily occupation, and, when this can be accomplished in such a manner as fully to occupy the attention, and produce fatigue, there is reason to believe that much benefit may result from it. Dr. Gregory used to mention a farmer in the north of Scotland, who had acquired uncommon celebrity in the treatment of the insane; and his method consisted chiefly in having them constantly employed in the most severe bodily labour. As soon, also, as the situation of the patient will admit of it, mental occupation must be considered as of the utmost importance. It should not consist merely of desultory employment or amusement, but should probably be regulated by two principles. 1. Occupations calculated to lead the mind gradually into a connected series of thought. When the mental condition of the patient is such as to make it practicable, nothing answers so well as a course of history, the leading events being distinctly written out in the form of a table, with the dates. Thus the attention is fixed in an easy and connected manner,—and, in cases which admit of such occupation being continued, the effect is often astonishing. 2. Endeavouring to discover the patient's former habits, and favourite pursuits, at a period previous to the hallucination, and unconnected with it; and using means for leading his attention to these. I have already alluded to the

complete suspension of all former pursuits and attachments, which often takes place in insanity, and to a return of them as being frequently the most marked and satisfactory symptom of convalescence. This is, in such cases, to be considered as a sign, not a cause of the improvement; but there seems every reason to believe, that the principle might be acted upon with advantage in the moral treatment of certain forms of insanity. On a similar principle, it is probable, that, in many cases, much benefit might result from mental management calculated to revive associations of a pleasing kind, in regard to circumstances anterior to the occurrence of the malady.

III. Careful classification of the insane, so that the mild and peaceful melancholic may not be harassed by the ravings of the maniac. The importance of this is obvious; but of still greater importance it will probably be, to watch the first dawnings of reason, and instantly to remove the patient from all associates, by whom his mind might be again bewildered. The following case mentioned by Pinel is certainly an extreme one, but much important reflection arises out of it in reference both to this and the preceding topic. A musician confined in the Bicètre, as one of the first symptoms of returning reason, made some slight allusion to his favourite instrument. It was immediately procured for him;

he occupied himself with music for several hours every day, and his convalescence seemed to be advancing rapidly. But he was then unfortunately allowed to come frequently into contact with a furious maniac, by meeting him in the gardens. The musician's mind was unhinged; his violin was destroyed; and he fell back into a state of insanity which was considered as confirmed and hopeless.

These observations contain only a very slight and imperfect view of a subject of intense interest. The mental management of the insane seems to deserve a much greater degree of attention than has hitherto been devoted to it;—and it appears to open a field for intellectual experiment, which promises most interesting and important results. There is one such experiment, the effect of which I have contemplated with much interest, namely, the influence produced upon the insane by divine service. I have been informed by Dr. Yellowly, that in the asylum of Norwich the influence of this has been such, that on seeing the patients retiring from service, a stranger could scarcely detect in one of them any appearance of insanity; and that even when one has manifested, during service, any degree of restlessness or excitement, he has been instantly checked by the other patients near him. This interesting fact shows what may be done; and I have no doubt that, when the intellectual and moral management of the insane

shall be prosecuted with the attention which is due to it, principles will be developed of much practical interest on this important subject. There is another object of great importance to which a careful intellectual management appears to be applicable; I mean the prevention of insanity in those in whom there exists the hereditary predisposition to it. I have no doubt that in this respect much might be done by careful and appropriate mental culture, commenced in early life; and that irremediable injury often arises from the want of it. There is every reason to believe that, in such cases, the tendency is greatly promoted by an ill-regulated state of mind, and that in many instances it might be prevented by a sound mental discipline.

Cases of decided insanity in general admit of little mental treatment, until the force of the disease has been broken in some considerable degree. But, among the numerous modifications which come under the view of the physician, there are various forms in which, by judicious management, a great deal is to be accomplished. Some of these affections are of a temporary nature, and have so little influence on a man's general conduct in life, that they are perhaps not known beyond his own family, or confidential friends. In some of these cases, the individual is sensible of the singular change which has taken place in the state of his mental powers, and

laments the distortion of his feelings and affections. He complains, perhaps, that he has lost his usual interest in his family, and his usual affection for them; and that he seems to be deprived of every feeling of which he was formerly susceptible. The truth is, that the mind has become so occupied by the erroneous impression, as to be inaccessible to any other, and incapable of applying to any pursuit, or following out a train of thought.

A most interesting affection of this class often comes under the observation of the physician, consisting of deep but erroneous views of religion,—generally accompanied with disturbed sleep, and considerable derangement of the system, and producing a state of mind closely bordering upon insanity. It occurs most commonly in young persons of acute and susceptible feelings, and requires the most delicate and cautious management. Two modes of treatment are frequently adopted in regard to it, both equally erroneous. The one consists in hurrying the individual into the distraction of company, or a rapid journey; the other, in urging religious discussions, and books of profound divinity. Both are equally injudicious, especially the latter; for every attempt to discuss the important subject, to which the distorted impression refers, only serves to fix the hallucination more deeply. The mode of treatment, which I have found most beneficial, consists of regular exercise, with attention to the general

health; and in enforcing a course of reading of a nature likely to fix the mind, and carry it forward in a connected train. Light reading or mere amusement will not answer the purpose. A regular course of history, as formerly mentioned, appears to succeed best, and fixing the attention by writing out the dates and leading events in the form of a table. When the mind has been thus gradually exercised for some time, in a connected train of thought, it is often astonishing to observe how it will return to the subject which had entirely overpowered it, with a complete dissipation of former erroneous impressions. A frequent complaint at the commencement of such an exercise is, that the person finds it impossible to fix the attention, or to recollect the subject of even a few sentences: this is part of the disease, and, by perseverance, gradually disappears. This experiment I have had occasion to make many times, and it has always appeared to me one of extreme interest. I do not say that it has uniformly succeeded, for the affection frequently passes into confirmed insanity; but it has succeeded in a sufficient number of instances to give every encouragement for a careful repetition of it. The same observations, and the same mode of treatment, apply to the other forms of partial hallucination. The plan is, of course, to be assisted by regular exercise, and attention to the general health, which is usually much impaired. The affections are particularly connected, in a very

intimate manner, with a disordered state of the stomach and bowels, and with derangements in the female constitution. Means adapted to these become, therefore, an essential part of the management.

There has been considerable discussion respecting the distinction between insanity and idiocy. It has been said, that the insane reason justly on false premises; and that idiots reason falsely on sound premises. This does not seem to be well founded. It would appear, that a maniac may reason either upon false or true premises; but that, in either case, his reasoning is influenced by distorted views of the relations of things. The idiot, on the other hand, does not reason at all; that is, though he may remember the facts, he does not trace their relations. Idiocy appears to consist, in a greater or less degree, in a simply impaired or weakened state of the mental powers; but this is not insanity. On the contrary, we have seen that, in the insane, certain mental powers may be in the highest state of activity,—the memory recalling things long gone by, —the imagination forming brilliant associations,— every faculty in the highest activity, except the power of tracing correct relations. I have already referred to a gentleman mentioned by Pinel, who possessed, during the paroxysm, a brilliancy of conception and a readiness of memory which were not

natural to him. Another, mentioned by the same writer, who was infatuated with the chimera of perpetual motion, constructed pieces of mechanism which were the result of the most profound combinations, at the time when he was so mad that he believed his head to have been changed. A female mentioned, I believe, by Rush, sang with great beauty and sweetness, which she could not do when she was sane; and a musician played, when insane, much better than when he was well.

In that remarkable obliteration of the mental faculties, on the other hand, which we call idiocy, fatuity, or dementia, there is none of the distortion of insanity. It is a simple torpor of the faculties, in the higher degrees amounting to total insensibility to every impression; and some remarkable facts are connected with the manner in which it arises without bodily disease. A man mentioned by Dr. Rush, was so violently affected by some losses in trade, that he was deprived almost instantly of all his mental faculties. He did not take notice of any thing, not even expressing a desire for food, but merely taking it when it was put into his mouth. A servant dressed him in the morning, and conducted him to a seat in his parlour, where he remained the whole day, with his body bent forward, and his eyes fixed on the floor. In this state he continued nearly five years, and then recovered completely and rather suddenly. The account which he afterwards

gave of his condition during this period was, that his mind was entirely lost; and that it was only about two months before his final recovery, that he began to have sensations and thoughts of any kind. These at first served only to convey fears and apprehensions, especially in the night-time. Of perfect idiocy produced in the same manner by a moral cause, an affecting example is given by Pinel. Two young men, brothers, were carried off by the conscription, and, in the first action in which they were engaged, one of them was shot dead by the side of the other. The survivor was instantly struck with perfect idiocy. He was taken home to his father's house, where another brother was so affected by the sight of him, that he was seized in the same manner; and in this state of perfect idiocy, they were both received into the Bicètre. For the production of such an extraordinary result, it is not necessary that the mental impression should be of a painful description. Pinel mentions an engineer, who, on receiving a flattering letter from Robespierre respecting an improvement he had proposed in the construction of cannon, was struck motionless on the spot, and soon after conveyed to the Bicètre in a state of complete idiocy. I have formerly referred to various examples of this condition supervening on bodily disease. In some of them, the affection was permanent; in others, it was entirely recovered from.

The most striking illustration of the various shades

of idiocy, is derived from the modifications of intellectual condition observed in the Cretins of the Vallais. These singular beings are usually divided into three classes, which receive the names of cretins, semi-cretins, and cretins of the third degree. The first of these classes, or perfect cretins, are, in point of intellect, scarcely removed above mere animal life. Many of them cannot speak, and are only so far sensible of the common calls of nature, as to go, when excited by hunger, to places where they have been accustomed to receive their food. The rest of their time is spent, either in basking in the sun, or sitting by the fire, without any trace of intelligence. The next class, or semi-cretins, show a higher degree of intelligence; they remember common events, understand what is said to them, and express themselves in an intelligible manner on the most common subjects. They are taught to repeat prayers, but scarcely appear to annex any meaning to the words which they employ; and they cannot be taught to read or write, or even to number their fingers. The cretins of the third degree learn to read and write, though with very little understanding of what they read, except on the most common topics. But they are acutely alive to their own interest, and extremely litigious. They are without prudence or discretion in the direction of their affairs, and the regulation of their conduct; yet obstinate and unwilling to be advised. Their memory is good as to what they

have seen or heard, and they learn to imitate what they have observed in various arts, as machinery, painting, sculpture, and architecture; but it is mere imitation without invention. Some of them learn music in the same manner; and others attempt poetry of the lowest kind, distinguished by mere rhyme. It is said, that none of them can be taught arithmetic, but I do not know whether this has been ascertained to be invariably true;—there is no doubt that it is a very general peculiarity.

The imbecile in other situations show characters very analogous to these. Their memory is often remarkably retentive; but it appears to be merely a power of retaining facts or words in the order and connexion in which they have been presented to them, without the capacity of tracing relations, and forming new associations. In this manner, they sometimes acquire languages, and even procure a name for a kind of scholarship; and they learn to imitate in various arts, but without invention. The deficiency appears to be in the powers of abstracting, recombining, and tracing relations; consequently they are deficient in judgment, for which these processes are necessary. The maniac, on the other hand, seizes relations acutely, rapidly, and often ingeniously,—but not soundly. They are only incidental relations, to which he is led by some train of association existing in his own mind; but they occupy his attention in such a manner, that he does

not admit the consideration of other relations, or compare them with those which have fixed themselves upon his mind.

The states of idiocy and insanity, therefore, are clearly distinguished in the more complete examples of both; but many instances occur in which they pass into each other, and where it is difficult to say to which of the affections the case is to be referred. I believe they may also be, to a certain extent, combined; or that there may be a certain diminution of the mental powers existing along with that distortion which constitutes insanity. They likewise alternate with one another,—maniacal paroxysms often leaving the patient, in the intervals, in a state of idiocy. A very interesting modification of another kind is mentioned by Pinel. Five young men were received into the Bicètre, whose intellectual faculties appeared to be really obliterated; and they continued in this state for periods of from three to upwards of twelve months. They were then seized with paroxysms of considerable violence, which continued from fifteen to twenty-five days, after which they all entirely recovered.

Idiocy can seldom be the subject either of medical or moral treatment; but the peculiar characters of it often become the object of attention in courts of law, in relation to the competency of imbecile persons to manage their own affairs; and much difficulty often occurs in tracing the line between com-

petency and incompetency. Several years ago a case occurred in Edinburgh, which excited much discussion, and shows, in a striking manner, some of the peculiarities of this condition of the mental faculties.—A gentleman of considerable property having died intestate, his heir-at-law was a younger brother, who had always been reckoned very deficient in intellect; and, consequently, his relatives now brought an action into the Court of Session, for the purpose of finding him incompetent, and obtaining the authority of the Court for putting him under trustees. In the investigation of this case, various respectable persons deposed, that they had long known the individual, and considered him as decidedly imbecile in his understanding, and incapable of managing his affairs. On the other hand, most respectable evidence was produced, that he had been, when at school, an excellent scholar in the languages, and had repeatedly acted as a private tutor to boys;—that he was remarkably attentive to his own interest, and very strict in making a bargain; that he had been proposed as a candidate for holy orders, and, on his first examination in the languages, had acquitted himself well; but that, in the subsequent trials, in which the candidate is required to deliver a discourse, he had been found incompetent. The Court of Session, after long pleadings, decided that this individual was incapable of managing his affairs. The case was then appealed to the House of Lords,

where, after farther protracted proceedings, this decision was affirmed. I was well acquainted with this person, and was decidedly of opinion that he was imbecile in his intellect. At my suggestion the following experiment was made, in the course of the investigation. A small sum of money was given him, with directions to spend it, and present an account of his disbursement, with the addition of the various articles. He soon got rid of the money, but was found totally incapable of this very simple process of arithmetic, though the sum did not exceed a few shillings. This individual, then, it would appear, possessed the simple state of memory, which enabled him to acquire languages; but was deficient in the capacity of combining, reflecting, or comparing. His total inability to perform the most simple process of arithmetic was a prominent character in the case, analogous to what I have already stated in regard to the Cretins. In doubtful cases of the kind, I think this might be employed as a negative test; with advantage; for it probably will not be doubted, that a person, who is incapable of such a process, is incompetent to manage his affairs.

I was lately consulted, and examined before a jury, respecting another young gentleman, the chief peculiarity of whose mental condition is, a total want of the power of tracing relations both as to time and numbers. He is about twenty-four years of age, of a respectable and wealthy family, and has been educated

with every care. He has made considerable proficiency in the languages; his memory is good, especially for dates, and he has a considerable turn for music. His deficiency is shown by such examples as the following. I laid before him a half-sovereign, a half-crown, and a few shillings, but he could not, after repeated attempts, tell the amount. He was shown a very common silver watch, and a handsome gold watch, and being asked their value, he answered correctly, about three or four pounds for the one, and forty guineas for the other. Being then asked, if they were to be exchanged, how much money the owner of the gold watch would have to receive in addition to the silver watch, he said about three pounds, and could not be brought to give a more correct answer. He tells his age correctly, and the year in which he was born, but if asked how many years there are between 1810 and 1834 he cannot give a correct answer. He shows various extravagancies in his notions respecting many of the ordinary affairs of life, but he is careful of his money, and in his ordinary conduct is gentle and amiable. From the facts which I have stated, the jury found him incompetent, and gave authority for placing him under trustees.

It is a singular fact, that the imbecile are, in general, extremely attentive to their own interest, and perhaps most commonly cautious in their proceedings. Ruinous extravagance, absurd schemes, and

quixotic ideas of liberality and magnificence, are more allied to insanity;—the former may become the dupes of others, but it is the latter who are most likely to involve and ruin themselves.

Before leaving the subject of Insanity, there is a point of great interest, which may be briefly referred to. It bears, in a very striking manner, upon what may be called the pathology of the mental powers,—but I presume not to touch upon it, except in the slightest manner. In the language of common life, we sometimes speak of a moral insanity, in which a man rushes headlong through a course of vice and crime, regardless of every moral restraint, of every social tie, and of all consequences, whether more immediate or future. Yet, if we take the most melancholy instance of this kind that can be furnished by the history of human depravity, the individual may still be recognised, in regard to all physical relations, as a man of a sound mind; and he may be as well qualified as other men, for the details of business, or the investigations of science. He is correct in his judgment of all the physical relations of things; but in regard to their moral relations, every correct feeling appears to be obliterated. If a man, then, may thus be correct in his judgment of all physical relations, while he is lost to every moral relation, we have strong ground for believing, that there is in his constitution a power, distinct from reason, but

which holds the same sway over his moral powers, that reason does among his intellectual; and that the influence of this power may be weakened or lost, while reason remains unimpaired. This is the moral principle, or the power of conscience. It has been supposed by some to be a modification of reason, but the considerations now referred to appear to favour the opinion of their being distinct. That this power should so completely lose its sway, while reason remains unimpaired, is a point in the moral constitution of man which it does not belong to the physician to investigate. The fact is unquestionable;—the solution is to be sought for in the records of eternal truth.

IV.—SPECTRAL ILLUSIONS.

The theory of spectral illusions is closely connected with that of the affections treated of in the preceding parts of this section; and I shall conclude this subject with a very brief notice of some of the most authentic facts relating to them, under the following heads.

I. False perceptions, or impressions made upon the senses only, in which the mind does not participate. Of this class there are several modifications, which have been referred to under the subject of per-

ception;—I add, in this place, the following additional examples.—A gentleman of high mental endowments, now upwards of eighty years of age, of a spare habit, and enjoying uninterrupted health, has been, for nearly twelve years, liable to almost daily visitations from spectral figures. They, in general, present human countenances; the head and upper parts of the body are distinctly defined;—the lower parts are, for the most part, lost in a kind of cloud. The figures are various; but he recognises the same countenances repeated from time to time,—particularly, of late years, that of an elderly woman, with a peculiarly arch and playful expression, and a dazzling brilliancy of eye, who seems just ready to speak to him. They appear also in various dresses, such as,—that of the age of Louis XIV.,—the costume of ancient Rome,—that of the modern Turks and Greeks, but more frequently of late, as in the case of the female now mentioned, in an old-fashioned Scottish plaid of tartan, drawn up and brought forward over the head, and then crossed below the chin, as the plaid was worn by aged women in his younger days. He can seldom recognise, among the spectres, any figure or countenance which he remembers to have seen; but his own face has occasionally been presented to him, gradually undergoing the change from youth to manhood, and from manhood to old age. The figures appear at various times of the day, both night and morning;—they continue

before him for some time, and he sees them almost equally well with his eyes open or shut,—in full daylight or in darkness. They are almost always of a pleasant character, and he seems to court their presence, as a source of amusement to him. He finds that he can banish them by drawing his hand across his eyes, or by shutting and opening his eyelids once or twice for a second or two,—but, on these occasions, they often appear again soon after. The figures are sometimes of the size of life, and sometimes in miniature; but they are always defined and finished with the clearness and minuteness of the finest painting. They sometimes appear as if at a considerable distance, and gradually approach until they seem almost to touch his face:—at other times they float from side to side, or disappear in ascending or descending. In general, the countenance of the spectre is presented to him, but, on some occasions, he sees the back of the head, both of males and females, exhibiting various fashions of wigs and head-dresses,—particularly the flowing, full-bottomed wig of a former age. At the time when these visions began to appear to him, he was in the habit of taking little or no wine; and this has been his common practice ever since; but he finds that any addition to his usual quantity of wine increases the number and vivacity of the visions. Of the effect of bodily illness he can give no account, except that once, when he had a cold, and took a few

drops of laudanum, the room appeared entirely filled with peculiarly brilliant objects, gold and silver ornaments, and precious gems ; but the spectral visions were either not seen, or less distinct.

I leave this remarkable case as it stood in the former editions of this work. Soon after the publication of the fourth edition, this gentleman had an attack in his head, followed by confusion of thought, and loss of the use of the English language, as mentioned in page 159 of the present edition. Since that time less is known of his spectral illusions ; but it has been ascertained that he is still liable to them. On one occasion, in particular, he saw the figure of his deceased wife, who seemed to beckon to him to follow her through a window ; and he actually made his way through the window, and fell on the lawn, a height of between seven and eight feet. He got up instantly, and followed the apparition into the garden and conservatory, which had been a frequent resort of his lady. He then met his overseer, told him what had occurred, and asked him whether he had not seen his wife. Upon being reminded that she was dead, he seemed to awake as from a dream, and returned to the house, and he never again was heard to allude to the occurrence.

Another gentleman who died some time ago at the age of eighty, for several years before his death, never sat down to table at his meals, without the impression of sitting down with a large party, dressed in the

fashion of fifty years back. This gentleman was blind of one eye, and the sight of the other was very imperfect: on this account he wore over it a green shade; and he had often before him the image of his own countenance, as if it were reflected from the inner surface of the shade. A very remarkable modification of this class of illusions has been communicated to me by Dr. Dewar of Stirling. It occurred in a lady who was quite blind, her eyes being also disorganized and sunk. She never walked out without seeing a little old woman with a red cloak and a crutch, who seemed to walk before her. She had no illusions when within doors.

Since the former edition of this volume was published, the case of a gentleman has been communicated to me, who has been all his life affected by the appearance of spectral figures. To such an extent does this peculiarity exist, that, if he meets a friend in the street, he cannot at first satisfy himself whether he really sees the individual or a spectral figure. By close attention he can remark a difference between them, in the outline of the real figure being more distinctly defined than that of the spectral; but in general, he takes means for correcting his visual impression by touching the figure, or by listening to the sound of his footsteps. He has also the power of calling up spectral figures at his will, by directing his attention steadily to the conception of his own mind; and this may either consist of a figure or a

scene which he has seen ; or it may be a composition created by his imagination. But though he has the faculty of producing the illusion, he has no power of banishing it ; and when he has called up any particular spectral figure or scene, he never can say how long it may continue to haunt him. The gentleman is in the prime of life, of sound mind, in good health, and engaged in business. Another of his family has been affected in the same manner, though in a slighter degree.

II. Real dreams, though the person was not at the time sensible of having slept, nor, consequently, of having dreamt. A person, under the influence of some strong mental impression, drops asleep for a few seconds,—perhaps without being sensible of it : some scene or person connected with the impression appears in a dream, and he starts up under the conviction that it was a spectral appearance. I have formerly proposed a conjecture, by which some of the most authentic stories of second sight may be referred to this principle ; others seem to be referable to the principle to be mentioned under the next head. Several cases mentioned by Dr. Hibbert are also clearly of the nature of dreams. The analogy between dreaming and spectral illusions is also beautifully illustrated, by an anecdote which I received from the gentleman to whom it occurred, an eminent medical friend. Having sat up late one evening,

under considerable anxiety about one of his children who was ill, he fell asleep in his chair and had a frightful dream, in which the prominent figure was an immense baboon. He awoke with the fright, got up instantly, and walked to a table which was in the middle of the room. He was then quite awake and quite conscious of the articles around him; but, close by the wall, in the end of the apartment, he distinctly saw the baboon, making the same horrible grimaces which he had seen in his dream; and the spectre continued visible for about half a minute.

III. Intense mental conceptions so strongly impressed upon the mind as, for the moment, to be believed to have a real existence. This takes place, when, along with the mental emotion, the individual is placed in circumstances in which external impressions are very slight,—as solitude, faint light, and quiescence of body. It is a state closely bordering upon dreaming, though the vision occurs while the person is in the waking state. The following example is mentioned by Dr. Hibbert. A gentleman was told of the sudden death of an old and intimate friend, and was deeply affected by it. The impression, though partially banished by the business of the day, was renewed, from time to time, by conversing on the subject with his family and other friends. After supper, he went by himself to walk in a small court behind his house, which was bounded by exten-

sive gardens. The sky was clear, and the night serene; and no light was falling upon the court from any of the windows. As he walked down stairs, he was not thinking of any thing connected with his deceased friend; but, when he had proceeded, at a slow pace, about half-way across the court, the figure of his friend started up before him in a most distinct manner at the opposite angle of the court. "He was not in his usual dress, but in a coat of a different colour which he had for some months left off wearing. I could even remark a figured vest, which he had also worn about the same time; also a coloured silk handkerchief around his neck, in which I had used to see him in a morning; and my powers of vision seemed to become more keen as I gazed on the phantom before me." The narrator then mentions the indescribable feeling which shot through his frame; but he soon recovered himself, and walked briskly up to the spot, keeping his eyes intently fixed upon the spectre. As he approached the spot, it vanished, not by sinking into the earth, but seeming to melt insensibly into air.*

A similar example is related by a most intelligent writer in the Christian Observer for October 1829. "An intimate friend of my early years, and most happy in his domestic arrangements, lost his wife under the most painful circumstances, suddenly,

* Hibbert on Apparitions, p. 470, *second edition.*

just after she had apparently escaped from the dangers of an untoward confinement with her first child. A few weeks after this melancholy event, while travelling during the night on horseback, and in all probability thinking over his sorrows, and contrasting his present cheerless prospects with the joys which so lately gilded the hours of his happy home, the form of his lost relative appeared to be presented to him, at a little distance in advance. He stopped his horse, and contemplated the vision with great trepidation, till in a few seconds it vanished away. Within a few days of this appearance, while he was sitting in his solitary parlour late at night, reading by the light of a shaded taper, the door, he thought, opened, and the form of his deceased partner entered,—assured him of her complete happiness, and enjoined him to follow her footsteps." This second appearance was probably a dream; the first is distinctly referable to the principles stated in the preceding observations.

An interesting case, referable to this head, is described by Sir Walter Scott, in his work on Demonology and Witchcraft. "Not long after the death of a late illustrious poet, who had filled, while living, a great station in the eye of the public, a literary friend, to whom the deceased had been well known, was engaged, during the darkening twilight of an autumn evening, in perusing one of the publications which professed to detail the habits and

opinions of the distinguished individual who was now no more. As the reader had enjoyed the intimacy of the deceased to a considerable degree, he was deeply interested in the publication, which contained some particulars relating to himself and other friends. A visitor was sitting in the apartment, who was also engaged in reading. Their sitting-room opened into an entrance-hall, rather fantastically fitted up with articles of armour, skins of wild animals, and the like. It was when laying down his book, and passing into this hall, through which the moon was beginning to shine, that the individual of whom I speak saw, right before him, and in a standing posture, the exact representation of his departed friend, whose recollection had been so strongly brought to his imagination. He stopped for a single moment, so as to notice the wonderful accuracy with which fancy had impressed upon the bodily eye the peculiarities of dress and posture of the illustrious poet. Sensible, however, of the delusion, he felt no sentiment save that of wonder at the extraordinary accuracy of the resemblance, and stepped onwards towards the figure, which resolved itself, as he approached, into the various materials of which it was composed. These were merely a screen, occupied by great-coats, shawls, plaids, and such other articles as usually are found in a country entrance-hall."

On this part of the subject, I shall only add the following example, which I have received from Dr.

Andrew Combe. A gentleman, a friend of his, had in his house a number of phrenological casts, among which was particularly conspicuous a bust of Curran. A servant girl belonging to the family, after undergoing great fatigue, awoke early one morning, and beheld at the foot of her bed the apparition of Curran. He had the same pale and cadaverous aspect as in the bust, but he was now dressed in a sailor's jacket, and his face was decorated with an immense pair of whiskers. In a state of extreme terror she awoke her fellow-servant, and asked whether she did not see the spectre. She, however, saw nothing, and endeavoured to rally her out of her alarm;—but the other persisted in the reality of the apparition, which continued visible for several minutes. The gentleman, it appears, at that time kept a pleasure yacht, the seamen belonging to which were frequently in the house. This, perhaps, was the origin of the sailor's dress in which the spectre appeared;—and the immense whiskers had also probably been borrowed from one of these occasional visitors.

To the same principle we are probably to refer the stories of the apparitions of murdered persons, haunting the murderer, until he was driven to give himself up to justice: many examples of this kind are on record. Similar effects have resulted in other situations from intense mental excitement. A gentleman mentioned by Dr. Conolly, when in great danger of being wrecked in a boat on the Eddystone

rocks, said he actually saw his family at the moment. In similar circumstances of extreme and immediate danger, others have described the history of their past lives being represented to them in such a vivid manner, that at a single glance the whole was before them, without the power of banishing the impression. Of this I have received a very remarkable example, in the case of a naval officer, who fell overboard and was taken up in a state of suspended animation, from which he was recovered by the usual means. In giving an account of his feelings, he stated his only distinct recollection to be,—that, in the act of drowning, as it might correctly be called, the whole events of his past life were represented to him at the instant in the most clear and striking manner.

To this head we are also to refer some of the stories of second sight,—namely, by supposing that they consisted of spectral illusions arising out of strong mental impression, and by some natural coincidence fulfilled in the same manner as we have seen in regard to dreams. Many of these anecdotes are evidently embellished and exaggerated; but the following I have received from a most respectable clergyman, as being to his personal knowledge strictly true. In one of the Western Isles of Scotland, a congregation was assembled on a Sunday morning, and in immediate expectation of the appearance of the clergyman, when a man started up, uttered a scream, and stood looking to the pulpit, with a coun-

tenance expressive of terror. As soon as he could be prevailed on to speak, he exclaimed, "Do you not see the minister in the pulpit, dressed in a shroud!"—A few minutes after this occurrence, the clergyman appeared in his place, and conducted the service, apparently in his usual health; but in a day or two after was taken ill, and died before the following Sunday.

The effect of opium is well known in giving an impression of reality to the visions of conception or imagination: several striking examples of this will be found in the Confessions of an Opium Eater. These are in general allied, or actually amount, to the delusions of delirium, but they are sometimes entirely of a different nature. My respected friend, the late Dr. Gregory, was accustomed to relate a remarkable instance which occurred to himself. He had gone to the north country by sea, to visit a lady, a near relation, in whom he felt deeply interested, and who was in an advanced state of consumption. In returning from the visit, he had taken a moderate dose of laudanum, with the view of preventing sea-sickness, and was lying on a couch in the cabin, when the figure of the lady appeared before him in so distinct a manner that her actual presence could not have been more vivid. He was quite awake, and fully sensible that it was a phantasm produced by the opiate, along with his intense mental feeling, but he was unable by any effort to banish the vision.

Some time ago I attended a gentleman, affected with a painful local disease, requiring the use of large opiates, but which often failed in producing sleep. In one watchful night, there passed before him a long and regular exhibition of characters and transactions, connected with certain occurrences which had been the subject of much conversation in Edinburgh some time before. The characters succeeded each other with all the regularity and vividness of a theatrical exhibition: he heard their conversation, and long speeches that were occasionally made, some of which were in rhyme; and he distinctly remembered, and repeated next day, long passages from these poetical effusions. He was quite awake, and quite sensible that the whole was a phantasm; and he remarked, that, when he opened his eyes, the vision vanished, but instantly re-appeared whenever he closed them.

IV. Erroneous impressions connected with bodily disease, generally disease in the brain. The illusions, in these cases, arise in a manner strictly analogous to dreaming, and probably consist of former conceptions recalled into the mind, and believed for the time to have a real and present existence. The diseases, in connexion with which they arise, are generally of an apoplectic or inflammatory character,—sometimes epileptic; and they are very frequent in the affection called delirium tremens,

which is produced by a continued use of intoxicating liquors. Dr. Gregory used to mention in his lectures a gentleman liable to epileptic fits, in whom the paroxysm was generally preceded by the appearance of an old woman in a red cloak, who seemed to come up to him, and strike him on the head with her crutch; at that instant, he fell down in the fit. It is probable that there was in this case a sudden attack of headach connected with the accession of the paroxysm, and that this led to the vision in the same manner as bodily feelings give rise to dreams. One of the most singular cases on record, of spectral illusions referable to this class, is that of Nicolai, a bookseller in Berlin, as described by himself, and quoted by Dr. Ferriar. By strong mental emotions, he seems to have been thrown into a state bordering upon mania; and, while in this condition, was haunted constantly, while awake, for several months, by figures of men, women, animals, and birds. A similar case is mentioned by Dr. Alderston;*—a man, who kept a dram-shop, saw a soldier endeavouring to force himself into his house in a menacing manner; and, in rushing forward to prevent him, he was astonished to find it a phantom. He had afterwards a succession of visions of persons long dead, and others who were living. This man was cured by bleeding and purgatives; and the source of his first vision was traced to a quarrel which he

* Edinburgh Medical Journal, vol. vi.

had, some time before, with a drunken soldier. A gentleman from America, who is also mentioned by Dr. Alderston, was seized with severe headach, and complained of troublesome dreams; and, at the same time, had distinct visions of his wife and family, whom he had left in America. In the state of delirium tremens, such visions are common, and assume a variety of forms. I have known a patient describe distinctly a dance of fairies, going on in the floor of the apartment, and give a most minute account of their figures and dresses.

Similar phantasms occur in various forms, in febrile diseases. A lady whom I attended some years ago, on account of an inflammatory affection of the chest, awoke her husband one night, at the commencement of her disorder, and begged him to get up instantly. She said she had distinctly seen a man enter the apartment, pass the foot of her bed, and go into a closet which entered from the opposite side of the room. She was quite awake, and fully convinced of the reality of the appearance; and, even after the closet was examined, it was found almost impossible to convince her that it was a delusion. There are numerous examples of this kind on record. The writer in the Christian Observer, lately referred to, mentions a lady, who, during a severe illness, repeatedly saw her father, who resided at the distance of many hundred miles, come to her bedside, and, withdrawing the curtain,

address her in his usual voice and manner. A farmer, mentioned by the same writer, in returning from a market, was deeply affected by a most extraordinary brilliant light, which he thought he saw upon the road, and by an appearance, in the light, which he supposed to be our Saviour. He was greatly alarmed, and spurring his horse, galloped home; remained agitated during the evening; was seized with typhus fever, then prevailing in the neighbourhood, and died in about ten days. It was afterwards ascertained that on the morning of the day of the supposed vision, before he left home, he had complained of headach and languor; and there can be no doubt that the spectral appearance was connected with the commencement of the fever. —Entirely analogous to this, but still more striking in its circumstances, is a case which I have received from an eminent medical friend; and the subject of it was a near relation of his own, a lady about fifty years of age. On returning one evening from a party, she went into a dark room, to lay aside some part of her dress, when she saw distinctly before her the figure of death, as a skeleton, with his arm uplifted and a dart in his hand. He instantly aimed a blow at her with the dart, which seemed to strike her on the left side. The same night she was seized with fever, accompanied by symptoms of inflammation in the left side; but recovered after a severe illness. So strongly was the vision impressed upon her mind, that, even for some time after her recovery,

she could not pass the door of the room in which it occurred, without discovering agitation,—declaring that it was there she met with her illness.

A highly intelligent friend, whom I attended several years ago, in a mild but very protracted fever, without delirium, had frequent interviews with a spectral visitor, who presented the appearance of an old and grey-headed man, of a most benignant aspect. His visits were always conducted exactly in the same manner: he entered the room by a door which was on the left-hand side of the bed, passed the end of the bed, and seated himself on a chair on the right-hand side: he then fixed his eyes upon the patient with an expression of intense interest and pity, but never spoke; continued distinctly visible for some seconds, and then seemed to vanish into air. His visits were sometimes repeated daily for several days, but sometimes he missed a day:—and the appearance continued for several weeks. The same gentleman, on another occasion, when in perfect health, sitting in his parlour in the evening, saw distinctly, in the corner of the room, a female figure in a kneeling posture, who continued visible for several seconds.

In a lady, whose case is mentioned in the Edinburgh Journal of Science for April 1830, there was an illusion affecting both sight and hearing. She repeatedly heard her husband's voice calling to her by name, as if from an adjoining room; and on one occasion

saw his figure most distinctly standing before the fire in the drawing-room, when he had left the house half an hour before. She went and sat down within two feet of the figure, supposing it to be her husband, and was greatly astonished that he did not answer when she spoke to him. The figure continued visible for several minutes, then moved towards a window at the farther end of the room, and there disappeared. A few days after this appearance, she saw the figure of a cat lying on the hearth-rug; and, on another occasion, while adjusting her hair before a mirror, late at night, she saw the countenance of a friend, dressed in a shroud, reflected from the mirror, as if looking over her shoulder. This lady had been, for some time, in bad health, being affected with pectoral complaints, and much nervous debility.—A remarkable feature of this case was the illusion of hearing; and of this I have received another example from a medical friend in England. A clergyman, aged fifty-six, accustomed to full living, was suddenly seized with vomiting, vertigo, and ringing in his ears, and continued in rather an alarming condition for several days. During this time, he had the sound in his ears of tunes most distinctly played, and in accurate succession. This patient had, at the same time, a very remarkable condition of vision, such as I have not heard of in any other case. All objects appeared to him inverted. This peculiarity continued three days, and then ceased gradually;—the ob-

jects by degrees changing their position, first to the horizontal, and then to the erect.

V. To these sources of spectral illusions, we are to add, though not connected with our present subject, those which originate in pure misconception; the imagination working up into a spectral illusion something which is really a very trivial occurrence. Of this class is an anecdote mentioned by Dr. Hibbert, of a whole ship's company being thrown into the utmost state of consternation, by the apparition of a cook who had died a few days before. He was distinctly seen walking a-head of the ship, with a peculiar gait, by which he was distinguished when alive, from having one of his legs shorter than the other. On steering the ship toward the object, it was found to be a piece of floating wreck. A story referable to the same principle is related by Dr. Ferriar:—A gentleman travelling in the highlands of Scotland, was conducted to a bedroom which was reported to be haunted by the spirit of a man who had there committed suicide. In the night he awoke under the influence of a frightful dream, and found himself sitting up in bed with a pistol grasped in his right hand. On looking round the room, he now discovered, by the moonlight, a corpse dressed in a shroud reared against the wall, close by the window; the features of the body, and every part of the funeral apparel being perceived distinctly. On recovering

from the first impulse of terror, so far as to investigate the source of the phantom, it was found to be produced by the moonbeams forming a long bright image through the broken window.—Two esteemed friends of mine, while travelling in the Highlands, had occasion to sleep in separate beds in one apartment. One of them, having awaked in the night, saw, by the moonlight, a skeleton hanging from the head of his friend's bed,—every part of it being perceived in the most distinct manner. He instantly got up to investigate the source of the illusion, and found it to be produced by the moonbeams falling upon the drapery of the bed, which had been thrown back, in some unusual manner, on account of the heat of the weather. He returned to bed, and soon fell asleep. But having awaked again some time after, the skeleton was still so distinctly before him, that he could not sleep without again getting up to trace the origin of the phantom. Determined not to be disturbed a third time, he now brought down the curtain into its usual state, and the skeleton appeared no more.

PART IV.

APPLICATION OF THE

RULES OF PHILOSOPHICAL INVESTIGATION

TO

MEDICAL SCIENCE.

THERE has been much difference of opinion among philosophers, in regard to the place which medicine is entitled to hold among the physical sciences; for, while one has maintained that it "rests upon an eternal basis, and has within it the power of rising to perfection," it has been distinctly asserted by another, that "almost the only resource of medicine is the art of conjecturing." "The following apologue," says D'Alembert, "made by a physician, a man of wit and of philosophy, represents very well the state of that science. 'Nature,' says he, 'is fighting with the disease; a blind man armed with a club, that is the physician, comes to settle the difference. He first tries to make peace; when he cannot accomplish

this, he lifts his club and strikes at random; if he strikes the disease, he kills the disease; if he strikes nature, he kills nature.'" "An eminent physician," says the same writer, "renouncing a practice which he had exercised for thirty years, said, 'I am wearied of guessing.'"

The uncertainty of medicine, which is thus a theme both for the philosopher and the humorist, is deeply felt by the practical physician in the daily exercise of his art. It becomes, therefore, an inquiry of the utmost importance,—what the sources of this uncertainty are,—where that point is in our researches at which its influence begins,—and, when we arrive at this point, what the means are by which it may be diminished.

The perfect uniformity of all the phenomena of nature, we have seen to be the foundation of the certainty of results in physical science. For, when the order and relations of these phenomena have once been ascertained, we calculate with confidence that they will continue to observe the same order. Proceeding upon this confidence, in relations which have been observed regarding the heavenly bodies, the astronomer foretells their positions even at very distant periods. In the same manner, the chemist, having ascertained the actions which take place when certain substances are brought into contact, and the new combinations which follow, decides with confi-

dence, that, in every instance in which these agents are brought together, the same actions will take place, and will be followed by the same combinations. This confidence, which lies at the foundation of all science, we have seen to be an original or instinctive principle, and not the result of experience; but it is the province of experience to ascertain the particular sequences to which it may be applied; in other words, to distinguish casual relations and sequences, from those which we are entitled to consider as uniform.

The uncertainty of medicine resolves itself chiefly into an apparent want of that uniformity of phenomena, which is so remarkable in other branches of physical science. There are, in particular, two departments of our inquiries, in which we feel continually the effect of this want of uniformity,—the characters and the progress of disease,—and the action of external agents upon the body.

Since medicine was first cultivated as a science, a leading object of attention has ever been, to ascertain the characters or symptoms by which particular internal diseases are indicated, and by which they are distinguished from other diseases which resemble them. But, with the accumulated experience of ages bearing upon this important subject, our extended observation has only served to convince us how deficient we are in this department, and how often, even in the first step of our progress, we are

left to conjecture. A writer of high eminence has even hazarded the assertion, that those persons are most confident in regard to the characters of disease, whose knowledge is most limited, and that more extended observation generally leads to doubt. After showing the uncertainty of the symptoms which are usually supposed to indicate effusion in the thorax, Morgagni adds the remarkable assertion to which I here allude :—" qui enim plura corpora inspexerunt, hi saltem, cum illi nil dubitant, ipsi dubitare didicerunt." If such uncertainty hangs over our knowledge of the characters of disease, it will not be denied, that at least an equal degree of uncertainty attends its progress. We have learned, for example, the various modes by which internal inflammation terminates,—as resolution, suppuration, gangrene, adhesion, and effusion ; but, in regard to a particular case of inflammation which is before us, how little notion can we form of what will be its progress, or how it will terminate.

An equal, or even a more remarkable uncertainty, attends all our researches on the second head to which I have referred,—the action of external agents upon the body. These engage our attention in two respects,—as causes of disease, and as remedies ; and, in both these views, the action of them is fraught with the highest degree of uncertainty. In regard to the action of external agents as causes of disease, we may take a single example in the effects of cold.

Of six individuals who have been exposed to cold in the same degree, and, so far as we can judge, under the same circumstances, one may be seized with inflammation of the lungs, one with diarrhœa, and one with rheumatism, while three may escape without any injury. Not less remarkable is the uncertainty in regard to the action of remedies. One case appears to yield with readiness to the remedies that are employed; on another, which we have every reason to believe to be of the same nature, no effect is produced in arresting its fatal progress; while a third, which threatened to be equally formidable, appears to cease without the operation of any remedy at all.

With these complicated sources of uncertainty, which meet us at every step in our medical inquiries, it is almost unnecessary to contrast the perfect uniformity of phenomena, on a confidence in which we proceed in other departments of science. When we mix together pieces of zinc, sulphuric acid, and water, we pronounce with perfect confidence, that the water will be decomposed, hydrogen evolved, the metal oxidated, the oxide dissolved, and sulphate of zinc produced; we pronounce with equal confidence on all the properties, mechanical and chemical, of the new compound which is thus to be formed; and in no case have we the smallest doubt of the exact occurrence of every step in this complicated process. With what different feelings we contemplate, in its

commencement, a case of dangerous internal disease, —its probable progress and termination, and the effect which our remedies are likely to produce in arresting it,—those best can tell who have most experienced them.

The certainty of a science, as was formerly stated, depends upon two circumstances; namely, the facility with which we ascertain the true relations and tendencies of things, or trace effects to their true causes, and causes to their true effects,—and the confidence with which we rely on the actions dependent on these relations, continuing to occur in all cases with perfect uniformity. This confidence we easily attain in those sciences in which we have to deal only with inanimate matter. We do so by means of experiments, in which, by placing the substances in various circumstances towards each other, we come to ascertain their true tendencies with perfect certainty, and to separate them from the influence of all associations which are only casual and incidental. Having thus discovered their tendencies or actions, we rely with confidence on these continuing to be uniform; and, should we in any instance be disappointed in the action which we wish to produce, we are able to trace the cause by which the expected result has been prevented, and to obviate the effect of its interference.

In both these respects we find in medicine a degree

of uncertainty which marks a striking distinction between it and the purely physical sciences.

I. There is great difficulty, in medicine, in tracing effects to their true causes, and causes to their true effects. This difficulty has already been illustrated, by the same cause appearing to produce in different instances different diseases, or no disease at all; and by a disease seeming to subside under the use of a remedy, which, in a similar case, fails to produce the smallest benefit. When we find our researches thus encumbered with uncertainty, we cannot, as in other sciences, clear them from the influence of casual relations, by means of direct experiment; but are obliged to trust chiefly to the slow course of observation, as the relations happen to be presented to us. Hence just conclusions are arrived at slowly, and we may be obliged to go on through a long course of observations, before we arrive at any results which we feel to be worthy of confidence. Hence also arises the great temptation to grasp at partial and premature conclusions, from which medical science has suffered so much injury. For, when such conclusions are brought forward with confidence, as long a course of observation may be required for exposing their fallacy, as might have been sufficient for ascertaining the truth. In this respect, we see the remarkable difference between medicine and the purely

physical sciences; as, in the latter, a single experiment may often be sufficient to overturn the most plausible hypothesis, or to establish one which has been proposed only in conjecture.

II. Even after we have ascertained the true relations and tendencies of things, we are constantly liable to disappointment in medicine, when we endeavour to produce certain results by bringing these tendencies into action. This arises from the silent operation of a new order of causes, by which the phenomena of disease are varied and modified; and by which the action of external agents is aided, modified, or counteracted, in a manner which altogether eludes our researches. The causes which thus operate, are certain powers in the living body itself, the action of which is entirely beyond our control; and others arising out of the peculiarities of age, sex, temperament of body and mind, and mental emotions; constituting a class of agents of a most powerful kind, of which it is impossible to estimate the combined operation. It is farther to be kept in view, that these various agents may be acting together, or in opposition to each other, or under a variety of combinations; and that, in reference to our attempts to act upon the body by remedies, they may be operating in concert with, or in opposition to, these attempts. Hence arises a most extensive source of uncertainty,

in all our investigations, of which it is impossible to calculate the effect or the extent. Hence also arises that apparent want of uniformity in the phenomena of disease, by which we are so much impeded in our researches; and that want of uniformity in the action of remedies, by which our efforts in medicine are so often disappointed.

III. Another source of uncertainty in the practical art of medicine, is the difficulty which we find in applying to new cases the knowledge which we have acquired from observation. This application is made upon the principle either of experience or analogy. We are said to proceed upon experience, when the circumstances in the new case are the same as in those cases from which our knowledge was derived. When the circumstances are not the same, but similar, we proceed upon analogy; and our confidence in the result is weaker than when we proceed upon experience. The more numerous the points of resemblance are, the greater is our confidence, because it approaches the more nearly to that which we derive from experience; and the fewer the points of resemblance are, our confidence is more and more diminished. When, in the practice of medicine, we apply to new cases the knowledge acquired from others, which we believe to have been of the same nature, the difficulties are so great, that

it is doubtful, whether, in any case, we can properly be said to act upon experience, as we do in other departments of science. For we have not the means of determining with certainty, that the condition of the disease, the habit of the patient, and all the circumstances which enter into the character of the affection, are in any two cases precisely the same: and, if they differ in any one particular, we cannot be said to act from experience, but only from analogy. The difficulties and sources of uncertainty, which meet us at every stage of such investigations, are, in fact, so great and so numerous, that those who have had the most extensive opportunities of observation will be the first to acknowledge, that our pretended experience must, in general, sink into analogy, and even our analogy too often into conjecture.

In a science encumbered with so many difficulties, and encompassed by so many sources of error, it is obvious what cause we have for proceeding with the utmost caution, and for advancing from step to step with the greatest circumspection. In attempting a slight outline of a subject so extensive and so important, I shall confine myself to a few leading rules of a strictly practical nature.

The objects to be kept in view, in all our investigations, appear to be the following:

I. To acquire an extensive collection of well-authenticated facts.

II. To arrange, classify, combine, or separate these facts.

III. To trace, among the facts, sequences or relations, particularly the relation of cause and effect.

IV. From an extensive collection of facts, to deduce general facts or general principles.

SECTION I.

OF THE ACQUISITION AND RECEPTION OF FACTS.

The foundation of all knowledge must be a careful and extensive acquisition of facts; and the first duty of an inquirer in any department of science is to bind himself down to such a patient accumulation, bewaring of all premature attempts to combine or generalize them.

In the acquisition of facts, we depend partly upon our own observation, and partly on the testimony of others. The former source is necessarily limited in extent, but it is that in which we have the greatest confidence; for, in receiving facts on the testi-

mony of others, we require to be satisfied, not only of the veracity of the narrators, but also of their habits as philosophical observers, and of the opportunities which they have had of ascertaining the facts. In the degree of evidence which we require for new facts, we are also influenced, as was formerly stated, by their probability, or their accordance with facts previously known to us; and for facts which appear to us improbable, we require a higher amount of testimony, than for those in accordance with our previous knowledge. This necessary caution, however, while it preserves us from credulity, should not, on the other hand, be allowed to engender scepticism; for both these extremes are equally unworthy of a mind which devotes itself with candour to the discovery of truth.

In forming a collection of facts, therefore, in reference to any investigation, we may state the cautions to be observed, and the errors to be guarded against, as chiefly referable to the following points:

I. Receiving facts on the testimony of persons of doubtful veracity, or whom we suspect of having purposes to answer by disguising, colouring, or modifying them.

II. Receiving facts on the testimony of persons, of whom we have doubts of their opportunities of acquiring correct information, or of their powers and

habits of accurate observation: receiving, for example, important statements, on the authority of hasty and superficial observers, or of incompetent persons, not professional.

III. Partial statements of facts, bearing upon one view of a subject, or one side of a question, or collected in support of a particular doctrine. This, when simply stated, will be universally admitted to be an error of the first magnitude in every scientific investigation; and yet, I imagine, it would not be difficult, even in very recent times, to find some remarkable examples of it. There is, indeed, scarcely any doctrine which may not, in the hands of an ingenious person, be wrought up, in this manner, into a fair system, amply supported by facts; and it is obvious, that nothing can be more contrary to the rules of sound inquiry. On this ground we may even make it a rule, to receive with suspicion the statements of a writer, when we find him first proposing his doctrine, and then proceeding to collect, from all quarters, facts in support of it. Such a mode of investigation must be considered as contrary to the principles of fair induction; for these lead us first to take a full view of the facts, and then to trace the principles or doctrines which arise out of them.

IV. Receiving as facts, on which important con-

clusions are to be founded, circumstances which are trivial, incidental, or foreign to the subject. For example, in the investigation of affections of the spinal cord, appearances have been often considered as indicative of disease, which we have good reason to believe have arisen merely from the position of the body after death. In the same manner, in the investigation of another class of diseases, an important place has been assigned to slight appearances in the gastro-intestinal membrane, which, we have reason to believe, are entirely incidental, and worthy of no confidence in a pathological inquiry.

V. Receiving as facts statements which falsely obtain that name. The sources of fallacy to be kept in view under this head are chiefly the following.

(1.) Receiving as facts statements which are not facts but opinions.—A person dies after being affected with a certain set of symptoms, and we find, on examination after death, the usual appearances of hydrocephalus. Another is seized with similar symptoms, and recovers. He is therefore said to have recovered from hydrocephalus, and such a statement is often given as a medical fact. The man's recovery from certain symptoms is a fact; that he recovered from hydrocephalus is not a fact, but an opinion.

(2.) Receiving as a fact a statement which only

assumes the relation of facts.—A person recovers from a particular disease, while he is using a particular remedy. His recovery is ascribed to the effect of the remedy; and the cure of the disease by this remedy is often given as a medical fact. The man's recovery is a fact; and that he used the remedy is another fact; but the connexion of the remedy with his recovery we are not entitled to assume as a fact:—it is tracing between the facts the relation of cause and effect,—a process of the utmost delicacy, and not to be admitted on any occasion without the greatest caution.

(3.) Receiving as facts general statements, or the generalization of facts. One of the most common examples of this error occurs, when a statement is given of a symptom or set of symptoms as certainly diagnostic of any particular disease, or of a particular morbid condition of an internal organ. Such a statement we hold to be of no value, unless we have absolute confidence in the narrator, both in regard to his habits as a philosophical observer, and to the extent of the observations on which his statement is founded. But, with every possible advantage in these respects, we are to exercise the utmost caution before we receive the relation, thus stated, as a fact; for it is to be kept in mind, that it is not properly a fact, but a generalization of facts. Some writers, for instance, have maintained with much confidence, that a particular state of rigidity of some of the limbs is

distinctly characteristic of ramollissement of the brain. But farther observation has shown that the disease may exist without this symptom, and that this condition of the limbs may appear in connexion with other diseases. Their observation of facts was so far correct, that this state of limbs does very often accompany ramollissement of the brain; the error consisted in giving it as a general fact, or a fact applicable to all cases of ramollissement,—which is without foundation. Yet such statements, when brought forward with confidence, are often received as facts, and rested upon as established principles; and then the facts by which their fallacy might be detected are apt to be overlooked or forgotten.

This may perhaps be considered as one of the most prevailing errors in the modern science of medicine; and it is indeed astonishing to observe the confidence with which such statements are brought forward, and the facility with which they are received as equivalent to facts, without attention to the manifold sources of fallacy with which they are encumbered. Does a writer, for example, tell us he has ascertained that the spinal cord is diseased in all cases of Tetanus. If we knew that such a statement had been founded on the careful observation of a hundred cases, it would be of value; if it was deduced from a few, its value is greatly diminished. But even if it had been deduced from the larger number, certain doubts would still arise in considering the relation thus stated as

a fact. We should naturally ask ourselves,—was the narrator qualified to judge of the facts and their relations,—were the cases referred to all really cases of Tetanus,—were the appearances in the cord such as could properly be considered as indicating disease, —or might any of them have been mere changes of colour, or other incidental appearances, which might have taken place after death, or might have been the effect of the convulsion rather than its cause,— or were they such changes as may be found in other cases without any symptoms of Tetanus? Other sources of fallacy will come into view, if the statement be, that the narrator has uniformly found a certain remedy of great efficacy in a particular disease. Here, in the first place, similar questions occur as in the former instance;—on how many cases did he found his statement,—how did he ascertain the disease,—and was he qualified to decide that it really was a case of the disease which he alleges? But, supposing all these questions to be answered in a satisfactory manner, others still arise, namely, —had the alleged treatment really any influence on the recovery of the patients,—did they get well in consequence of the treatment, or in spite of it, or altogether independently of it,—have not similar cases recovered spontaneously, or under modes of treatment entirely different?—Such is the uncertainty of causation and generalization in medicine;

and such is the danger of receiving general statements as equivalent to facts.

VI. In forming a collection of facts on which we are to found any conclusions, it is always to be kept in mind, that fallacy may arise from the absence of important facts, as well as from the reception of statements which are untrue. Hence the erroneous conclusions that may be deduced from statements which are strictly true; and hence the fallacious systems that are built up with every appearance of plausibility and truth, when facts are collected on one side of a question, or in support of a particular doctrine.

In forming a collection of facts, therefore, as the preliminary step in any inquiry, the following rules ought to be kept strictly and constantly in view, before we advance to any conclusions.

I. That all the facts be fully ascertained,—that those collected by ourselves be derived from sufficient observation,—and that those which we receive from others be received only on the testimony of persons fully qualified to judge of their accuracy, and who have had sufficient opportunities of acquiring them.

II. That the statement include a full and fair

view of all the facts which ought to be taken into the investigation;—that none of them be disguised, or modified so as to be made to bear upon a particular doctrine; and that no essential facts be wanting.

III. That the statement do not include facts which are trivial, incidental, or foreign to the subject.

IV. That we do not receive as facts statements which are not facts, but opinions or general assumptions.

SECTION II.

OF ARRANGING, COMBINING, AND SEPARATING FACTS.

The precautions now suggested appear to be those which it is necessary to keep in view, in making a collection of facts respecting any subject under investigation. Our next step is to arrange the facts according to the characters in which they agree; to separate from the mass those which appear to be only fortuitous or occasional concomitants; and to

place by themselves those which we have reason to consider as a uniform and legitimate series or sequence. This is the first step towards tracing the relations of the facts; and, in every investigation, it is a process of the utmost consequence. In the other departments of physical science, this object is accomplished by means of experiments. These are so contrived as to bear distinctly upon particular points; and, by the result of them, we are enabled to separate associations which are incidental, from those which are uniform; or, in other words, to ascertain what number of the circumstances, which we find associated in a particular series, are really connected with the result which follows. In medicine, this is a process of greater difficulty, because we are obliged to trust to the slower course of minute and long-continued observation.

The rules to be observed under this head are essential to every department of medical inquiry; but, perhaps, they are peculiarly important in our observations respecting the phenomena of disease. By this, we mean such an acquaintance with the symptoms which characterize particular diseases, and the morbid appearances in the cases which are fatal, as shall enable us to trace the relation between the symptoms and the nature and seat of the disease. A full collection of uniform and essential facts on these subjects, cleared, as far as we are able, from all incidental combinations, is the only true founda-

tion of medical science; and every system, however ingenious, which rests upon any other, can be nothing better than hypothesis and conjecture. It is an essential, but difficult part of medical investigation, and one which we must conduct with much patience, without allowing ourselves to be seduced by theory or system, from the path of rigid observation. In prosecuting it, we must be cautious in considering our conclusions as perfect, but make it our constant study, by farther observation, to clear them more and more from every source of error.

Whatever leads the mind from the importance and the difficulty of this investigation is injurious to medical science. The error to be chiefly avoided, is a fondness for system; and I must confess my suspicion, that, in this respect, a zeal for nosology has been unfavourable to the progress of medicine. The nosologist proceeds upon the principle, that the characters of disease are, to a certain extent, fixed and determined, like the botanical characters of a plant, or the chemical properties of a mineral. Hence, it too frequently happens, that individual cases are compared with the system, instead of the system being corrected by farther observation. In this manner, young practitioners are in danger of attempting to ascertain a disease by its agreement with the nosological ch racters, and are drawn away from that minute attention to the phenomena, which alone can lead to correct diagnosis. Thus a medical

man might argue with regard to a case indicating disease in the brain, that there can be no effusion, because the pulse has never been below the natural standard, or because the pupils are not dilated; or, with regard to an affection of the abdomen, that there is no inflammation, because the pulse is strong and the bowels open. Nosology, it is true, teaches him, that, in hydrocephalus, at a certain period, the pulse becomes slow, and the pupils dilated; and that, in intestinal inflammation, the pulse is small and the bowels obstructed; but no great extent of observation is required to show, that the symptoms now mentioned are not uniform or essential to these diseases. Such a confidence in system must be equally injurious to the improvement of the individual, and to the progress of medical science; and the examples now given will be sufficient to illustrate the importance of the rule which these observations are intended to convey,—separating facts which are occasional or incidental, from those that are uniform and essential.

On this subject I shall only add the following anecdote, which I received from a medical man of very high intelligence. At an early period of his career as a naval surgeon, he was left in charge of a ship on the West India station, when several sailors presented themselves, with an affection of the legs, the nature of which was entirely new to him. Having expressed his difficulty to one of the officers, not

medical, he was promptly told that the disease was scurvy, and that, if he examined the gums of his patients, he would find sufficient evidence. To this he replied, that the thing was impossible, because, in the nosology of Dr. Cullen, it is expressly specified, that scurvy occurs "in regione frigida." He was, however, soon convinced that the disease was really scurvy, though it occurred in the West Indies; and, as he added, received a most important lesson, to observe for himself, instead of trusting to systems.

SECTION III.

ON TRACING AMONG FACTS THE RELATION OF CAUSE AND EFFECT.

Our knowledge of cause and effect, in reference to any two particular events, is founded entirely upon the observation of a uniform sequence of the events; or of the one following the other in a uniform manner in a great number of instances. The greater the number of instances is, in which the sequence has taken place, with the greater confidence, as formerly remarked, do we expect it to take place again under similar circumstances; and every single instance, in which it does not occur, weakens this confidence,

unless we can discover some adequate cause by which the sequence was interrupted. The result of this confidence is, that, when we observe the first of two such events, we expect the second to follow it; and that, when we observe the second, we conclude the first has preceded it;—the first we call cause, the second effect.

In every department of science, it is a step of the utmost delicacy to assign to two events this relation: and manifold errors arise from assigning it on inadequate grounds,—that is, on an insufficient number of observations. In medical science, we have farther to contend with peculiar difficulties and sources of error. These have been already mentioned as referable to two classes,—namely, the difficulty of tracing effects to their true causes, and causes to their true effects;—and the manner in which the real tendencies of antecedents or causes are modified or counteracted by a new series of causes, which elude our observation. From these peculiarities it often happens, that the true antecedents of important events are of an obscure and hidden nature; while the apparent relations would lead us to associate them with antecedents more immediately under our view, but whose connexion with the results is entirely incidental. Other obstacles arise from difficulty in ascertaining the facts themselves, and in tracing the order of the sequences;—as, in doing so, we are often obliged to trust to ob-

scure indications of actions, which are going on in internal parts, and which are themselves liable to much uncertainty. Thus, a complicated source of difficulty pervades the whole subject of medical causation, and makes it one of the most delicate topics that can engage the attention of the philosophical inquirer.

There are three particular views, in which, in medical investigations, we have occasion to trace among successive events the relation of uniform sequence,—namely, the effects of external agents as causes of disease,—the effects of external agents as remedies,—and the connexion of certain morbid conditions of internal organs, with certain symptoms by which these become known to us. In regard to all these objects of research, it is of importance to keep in mind the sources of fallacy to which we are liable, in assigning to a succession of events the relation of uniform sequence, or, in other words, in considering the one as the cause of the other.

I. The connexion which we observe may be entirely accidental. That causation should be assigned on grounds so slight, as to admit of this explanation, may appear improbable; but no person acquainted with the history of medicine will find difficulty in pointing out examples of it, especially in the effects which are often ascribed to remedies on the slightest possible grounds. In this manner, by some

bold and confident assertion, founded, probably, on very limited observation, a remedy is frequently brought into repute, as nearly infallible in a certain class of diseases, which we find, in a very short time, consigned to oblivion.

II. The events may be closely connected, but not as cause and effect. They may be effects of a third event, which is the cause of both; or they may be parts in a sequence, in which we have still to discover the true antecedent. Thus, in the examination of the bodies of those who have died of hydrocephalus, the liver has frequently been found in a state of disease; and, upon this ground, diseased liver has been stated as one of the causes of hydrocephalus. This must be considered as an example of false causation, for, in its reference to hydrocephalus, diseased liver cannot be considered in any other light than as another effect of a common cause,—namely, as a result of that unhealthy state of the constitution in which hydrocephalus is most apt to occur. When the nature of croup was first investigated, the formation of a new membrane was observed in the larynx, and this was considered as the cause of croup. Farther investigation, however, showed that this was but one of a chain of sequences, the real antecedent of which is inflammation of the membrane lining the larynx.

III. The events may be really connected as cause and effect, while there is difficulty in assigning to them their places in the sequence; that is, in determining which is cause and which is effect. This occurs when, in ascertaining the facts themselves, and the order of their sequence, we are obliged to trust to external indications of actions which are going on in internal parts. It is a difficulty of frequent occurrence; and want of due attention to it appears to have been the source of much fallacious reasoning. In the investigations, for example, respecting the nature of continued fever, various morbid appearances have been observed in the internal organs; and each of these has, in its turn, been confidently assigned as the cause of fever. Thus, one has placed the seat and cause of fever in the brain; another in the spinal cord; a third in the gastro-intestinal membrane; and, according to one of the latest doctrines, inflammation of the mucous follicles of Peyer and Brunner has been confidently stated as the cause of every modification of fever. It does not belong to this part of our inquiry to examine minutely the comparative merit of these systems. In all of them there is a correct observation of facts, and probably a real relation of cause and effect; the error consists in fixing the order of the sequence; for a very slight view of the subject is sufficient to show, that the morbid appearances on which they rest must be considered as effects, or incidental concomitants of fever,

—not as its cause. This kind of false causation may also occur in other subjects. In certain states of the weather, for example, many people are in the habit of saying that a shower brings a change of the wind. There is every reason to believe that there is between the two events a real connexion of causation, but the meteorologist rather tells us that the change of the wind produces the shower.

IV. When we observe a particular change in the living body, and trace an apparent relation between it and some external agent which seems to be the immediate antecedent, it may very often happen that other agents are concerned which elude our observation ;—though they have been the real antecedents or agents in the change which has taken place, or have contributed to it in a very great degree. This is a principle of most extensive application in medical causation, and is one of the chief sources of its difficulty and uncertainty. The agents referred to are chiefly certain powers in the living body itself. These in all cases exert a greater or less influence in the changes which are the objects of our inquiries, and, in many cases, are the sole agents in producing results which we falsely and ignorantly ascribe to our remedies. When a disease has terminated favourably, our treatment may have been proper, and may have co-operated with these powers ;—it may have been totally inefficient and harmless, and have had no influence

whatever in producing the result;—or it may have been improper and hurtful, and yet these powers may both have thrown off the disease, and have counteracted the effects of our blind interference. It is unnecessary to allude, also, to the extensive influence which, in certain classes of disease, is produced by passions and affections of the mind, often of so delicate a nature, that even the person who is the subject of them shall not be aware of their influence.

The sources of false causation in regard to the action of remedies, therefore, may be chiefly referred to the following heads.

1. The disease being thrown off by the powers of the constitution itself, or removed by some circumstances, either external or mental, which are not taken into account, or perhaps not known; while the recovery of the patient is ascribed to some remedy which he was using at the time, but which had no influence whatever in producing it. From this source have arisen the many instances of inert or trivial remedies acquiring a temporary reputation, which have been afterwards entirely neglected, or even expunged from the pharmacopœia. The only means of avoiding this error, is by using the utmost caution in assigning effects to particular remedies, and doing so only after extensive and careful observation. On the other hand, we are not entitled to decide, *a priori*, that any particular substance to which certain effects are ascribed is inert or unworthy of attention. Candid

and careful observation of facts must be our guide in this case, as well as in the former.

This source of false causation is particularly to be kept in view, in regard to those diseases which are greatly influenced by adventitious causes,—such as mental emotions, or the patient's external circumstances. A gentleman, immersed in the business or the pleasures of a great city, becomes disordered in his health, dyspeptic and hypochondriacal. He receives much good advice from his medical friend, which he professes to follow with implicit confidence, and proceeds to do so amidst the anxieties of business, bad air, late hours, luxurious dinners, and nearly the total want of bodily exercise. Deriving no benefit from all that is done for him, he hears of some celebrated water, which has acquired great reputation in the cure of stomach-complaints, and at length makes up his mind to resort thither, though with little hope of deriving benefit from any thing. He now lays aside all business, lives by rule, keeps early hours, and is all day long in the open air. He soon recovers excellent health, and cordially concurs in spreading the fame of the water by which a cure so wonderful has been accomplished. An anecdote has been related of a physician in London having advised a dyspeptic patient, who had baffled all his remedies, to go down and consult a celebrated physician in Inverness, whose name he gave him. On arriving there, he soon discovered that there was no

such person to be found. He then returned to London, somewhat nettled at the trick which had been practised upon him, though he was obliged to acknowledge that he was cured of his disorder.

On this subject we have especially to keep in mind the extensive class of diseases which are acted upon, in a most powerful manner, by causes entirely mental. These are the numerous and ever-varying maladies which are included under the terms, dyspeptic, hypochondriacal, and nervous. Many of them have their origin in mental emotions, which elude observation; and a very large proportion are entirely referable to indolence and inaction,—to that vacuity of mind attending the unfortunate condition in which there is no object in life but to find amusement for the passing hour. When, on patients of this description, the dexterous empiric produces results which the scientific physician had failed to accomplish, we are too apt to accuse him, in sweeping terms, of practising upon their credulity. He, in fact, employs a class of remedies of the most powerful kind, to which the other, perhaps, attaches too little importance,—namely, mental excitement and mental occupation,—the stimulus of having something to hope and something to do. Examples of this kind must have occurred to every practical physician. I have known a young lady, who had been confined to bed for months, and had derived no benefit from the most careful medical treatment, re-

stored to health by the excitement of a marriage taking place in the family. Changes of circumstances, also, or misfortunes which call for new and unusual exertion, have often been known to produce similar results ; and it is a matter of old and frequent observation, that diseases of the nervous class disappear during periods of public alarm and political convulsion. Nor is it only on disorders of this nature that remarkable effects are produced by mental causes ; for mental excitement is known to operate in a powerful manner on diseases of a much more tangible character. Dr. Gregory was accustomed to relate the case of a naval officer, who had been for some time laid up in his cabin, and entirely unable to move, from a violent attack of gout ; when notice was brought to him that the vessel was on fire, in a few minutes he was on deck, and the most active man in the ship. Cases of a still more astonishing kind are on record. A woman, mentioned by Diemerbroeck, who had been many years paralytic, recovered the use of her limbs when she was much terrified during a thunder-storm, and was making violent efforts to escape from a chamber in which she had been left alone. A man, affected in the same manner, recovered as suddenly, when his house was on fire ; and another, who had been ill for six years, was restored to the use of his paralytic limbs during a violent paroxysm of anger.

2. Referring symptoms to a cause which is alto-

gether hypothetical, and then assigning to particular remedies the power of removing this cause. To this head we may refer the remedies which were at one time supposed to expel morbific matter in fever,—those which are believed to purify the blood,—to remove congestions at the origin of the nerves,—to equalize the circulation, &c.

3. Mistaking the nature of a disease, and representing a remedy as having cured an affection which did not exist. There is ground for believing that this error has frequently occurred in medical science, and has been the source of many statements, in which remarkable effects have been ascribed to particular modes of treatment in various formidable diseases. There seems little reason to doubt, that, in this manner, hysterical affections have sometimes been mistaken for epilepsy or tetanus,—abdominal distension for peritonitis,—chronic bronchial affections for consumption,—febrile oppression in children for hydrocephalus,—irritable urethra or bladder for stricture or calculus,—and affections of the bowels for diseases of the liver. Many similar examples will occur to those who are conversant with the history of medicine. The error may occur to the respectable practitioner, from misapprehension, arising out of the uncertainty of the art; but it also appears to be one of the great resources of the empiric. When we hear, therefore, of marvellous cures of formidable diseases, our first inquiry ought to be,

not merely whether the patient recovered, but what evidence there is that the alleged disease ever existed.

Such are the difficulties and uncertainties of medical causation; and such is the ground for caution in considering two events as connected in the manner of cause and effect. Among the sources of this difficulty, there are several circumstances which are entirely beyond our reach, and the influence of which upon our researches, we cannot hope entirely to overcome; but, by keeping steadily in view the sources of error by which we are surrounded, we may avoid any very fallacious conclusions, and may make some progress towards the truth. In regard to the effects of medicines, in particular, there are two opposite errors to be equally avoided;—namely, an implicit confidence in the power of particular remedies, and a total scepticism in regard to the resources of medicine. Both these extremes are equally unworthy of persons of calm philosophical observation; and they who advance carefully in the middle course, not misled by the temptation to hasty conclusions, and cautioned, but not discouraged, by the danger of concluding falsely, are most likely to contribute something towards diminishing the uncertainty of medicine.

Before leaving the subject of causation I would briefly allude to a confusion which has been intro-

duced into the language of medicine, by the division of the causes of disease into predisposing, exciting, and proximate. It is well known that a cause which appears to produce a disease, in one instance, will, in another, be followed by no result, or by a disease of a different kind. Attempts have, accordingly, been made, to investigate the circumstances which produce a tendency to be affected by particular diseases at certain times,—and these have received the name of predisposing causes, or sometimes of occasional causes. The effluvia of marshes, for example, are considered as the exciting cause of intermittent fever; but the disease is not produced in all who are exposed to these effluvia. Various circumstances, such as fatigue and intemperance, are said to act as the predisposing or occasional causes. But, in other situations, fatigue and intemperance were never known to produce intermittent fever; and they cannot, therefore, in correct language, be said to be connected with the disease in the manner of cause. The term proximate cause, again, has been applied to minute changes which take place in certain functions of the body, so as to constitute particular diseases. Such speculations are, in general, in a great measure hypothetical; but, even if they were ascertained to be true, these changes must be considered as constituting the nature and essence of the disease, and could not be regarded in the light of a cause. If these observations shall be considered as entitled

to any weight, it will follow that the term cause ought to be restricted to that which has commonly been called the exciting cause.

SECTION IV.

OF DEDUCING GENERAL FACTS OR GENERAL PRINCIPLES.

Having, with the cautions which have been referred to, collected a body of authentic facts, and having traced among these facts the relation of uniform sequence, or uniform conjunction, the next step in our investigation is to bring together a number of these facts, or classes of facts, and to endeavour to deduce from them general principles.

By the process of mind which we call abstraction, we separate one property of a substance from its other properties, or one fact from a chain of facts, and contemplate it apart. When we thus view a number of substances, or a number of classes of facts, and separate an individual property or individual fact, which is common to them all, we may then contemplate this fact or property as characteristic of the whole class,—and the process constitutes generalizing, or deducing a general fact, or general principle.

Generalizing is to be distinguished from classification, though the mental process concerned in both is essentially the same. We class together a certain number of substances, by a property in which they agree; and, in doing so, we specify and enumerate the individual substances included in the class. Thus, we may take a number of substances differing widely in their external and mechanical properties, some being solid, some fluid, and some gaseous, and say, they are all acids. The class being thus formed, and consisting of a defined number of substances, which agree in the property of acidity, we may next investigate some other property which is common to all the individuals of the class, and belongs to no other, and say, for example, that all acids redden vegetable-blues. The former of these operations is properly classification,—the latter is generalizing in reference to the class. In the former, we take or exclude individual substances, according as they possess or not the property on which the classification rests; in performing the latter, the property which is assumed must belong to all the individuals without a single exception; or, if it does not, it must be abandoned as a general fact or general principle in reference to the class. In classifying, we may use every freedom regarding individuals, in taking or excluding them. In generalizing, we must not exclude a single individual; for the principle, which does not include every one of them, that is,

the proposed fact, which is not true of all the individuals, is not a general fact, and consequently cannot be admitted as a general principle. For in physical science, to talk of exceptions to a general rule, is only to say, in other words, that the rule is not general, and, consequently, is unworthy of confidence. If one acid were discovered which does not redden vegetable-blues, it would belong to a history of these substances to state that a certain number of them have this property; but the property of reddening vegetable-blues would require to be abandoned as a general fact or general principle, applicable to the class of acids.

A general law, or general principle, then, is nothing more than a general fact; or a fact which is invariably true of all the individual cases to which it professes to apply. Deducing such facts, is the great object of modern science; and it is by this peculiar character that it is distinguished from the ancient science of the schools, the constant aim of which was to discover causes. The general law of gravitation, for example, is nothing more than the general fact, or fact invariably true, that all bodies, when left unsupported, fall to the ground. There were, at one time, certain apparent exceptions to the universality of this law, namely, in some very light bodies, which were not observed to fall. But a little farther observation showed, that these are prevented from falling by being lighter than the atmosphere, and

that in vacuo they observe the same law as the heaviest bodies. The apparent exceptions being thus brought under the law, it became general, namely, the fact universally true, that all unsupported bodies fall to the ground. Now, of the cause of this phenomenon, we know nothing; and what we call the general law or general principle of gravitation is nothing more than a universal fact, or a fact that is true without a single exception. But, having ascertained the fact to be invariably and universally true, we assume it as a part of the established order of nature, and proceed upon it with as much confidence as if we knew the mysterious agency on which the phenomenon depends. The establishment of the fact as universal brings us to that point in the inquiry which is the limit of our powers and capacities, and it is sufficient for the purposes of science. On the same principle it is familiar to every one, that extensive discoveries have been made in regard to the properties and laws of heat; but we do not know what heat is, whether a distinct essence, or, as has been supposed by some philosophers, a peculiar motion of the minute atoms of bodies.

In the same manner, the person who first observed iron attracted by the magnet, observed a fact which was to him new and unaccountable. But the same phenomenon having been observed a certain number of times, a belief would arise, that there existed between it and the substances concerned, a con-

nexion of cause and effect. The result of this belief would be, that, when the substances were brought together, the attraction would be expected to take place. Observations would then probably be made with other substances, and farther observations with the same substances; and it being found, that the attraction took place between iron and the magnet only, and that between these it took place in every instance, the general principle would be deduced, or the fact universally true in all instances, that the magnet attracts iron. The same observation applies to the other remarkable property derived from the magnet,—pointing to the north. The phenomenon received the name of magnetism, and the laws were then investigated by which it was regulated; but what we call magnetism is still nothing more than a mode of expressing the universal fact, that the magnet attracts iron, and points to the north. On what hidden influence these remarkable phenomena depend, we are still nearly as ignorant as the man who first observed them; and, however interesting it would be to know it, the knowledge is not necessary to the investigation of the laws of magnetism.

These may, perhaps, be considered as fair examples of the inductive philosophy, as distinguished from the hypothetical systems of the era which preceded it. According to these, the constant aim of the inquirer was the explanation of phenomena; and, in

the case before us, a theory would have been constructed, calculated to account for the attraction, by the fluxes and refluxes of some invisible fluid or ether, which would have been described with as much minuteness as if there had been real ground for believing it to exist. Strikingly opposed to all such speculations, is the leading principle of the inductive philosophy, that the last object of science is to "ascertain the universality of a fact."

"The study of nature," says an eminent writer, "is the study of facts, not of causes." In conformity with this truth, the objects of science may perhaps be defined to be,—to observe facts,—to trace their relations and sequences,—and to ascertain the facts which are universal. It consists in simply tracing the order which is observed by the phenomena of nature;—the efficient causes of these phenomena being considered as beyond the reach of the human faculties, and, consequently, not the legitimate objects of scientific inquiry. It is thus strikingly opposed to the old philosophy, the constant aim of which was the explanation of phenomena, and which has therefore received the name of "the philosophy of causes."

This important distinction between induction and hypothetical speculation, which is now so firmly established in other departments of science, it is to be feared has not been so fully recognised in medical investigations. On the contrary, every one who is ac-

quainted with the history of medical doctrines will probably admit, that medicine is still deeply tinged with the philosophy of causes; in other words, that there is a remarkable tendency to refer phenomena to certain obscure principles, which cannot be shown to be facts, and consequently cannot be considered as the objects of legitimate inquiry. It is unnecessary, in this place, to refer more particularly to fictitious and hypothetical principles of this description, which, one after another, have held a prominent place in medical science. If the rules of the inductive philosophy are to be applied to medicine, the immediate effect of them must be, to banish all such speculations, as contrary to the first rules of sound investigation. They are entirely fictitious principles, framed to correspond with the phenomena, instead of being deduced from them. It is also, in general, beyond the reach of observation, either to establish or overturn them; and the only mode of detecting their character, is to bring them to the test of the inquiry,—are they facts, and are the facts universal?

The rules to be observed in deducing general principles appear therefore to be the following:

1. That the principle assumed be itself a fact.

2. That it be true, without a single exception, of all the individual cases; or, in other words, that the fact be universal.

I. The first of these rules is opposed to a practice,

lately referred to, which must be admitted to have been very prevalent in medical science; namely, that of referring phenomena to fictitious principles which cannot be shown to be facts. Of the principles of this class, which at various periods have held a prominent place in medical doctrine, some have had their day, and are now forgotten; but it may be doubted whether they were inferior in value to those which have succeeded them. We do not now hear of viscidity of the blood, lentor of the fluids, or rigidity of the solids; of morbific matter in the blood, of hot or cold humours, of obstruction of the animal spirits, and other doctrines by which various phenomena were explained by the inquirers of former times; but, perhaps, those of more recent date can scarcely be considered as more satisfactory. It may certainly, at least, be a question, whether we can concede the character of facts to irregular excitement of the nervous system, hepatic derangement, as that term is very commonly employed, and the numerous modifications under which we meet with the doctrines of determination, irritation, congestion, sympathy, and spasm.

II. The second rule is opposed to the error of hasty generalizing, or of deducing a general statement from a limited number of facts. We can avoid this error, only by keeping steadily in view, that general principles derive their whole value from be-

ing universal facts,—or facts that are true without a single exception, in regard to all the individual cases to which the principle is meant to apply. When they are deduced prematurely, that is, from a limited number of facts, or a partial view of their minute characters, they fail entirely of the purposes which they are meant to serve, and when trusted lead us into error. I have formerly alluded to several examples of hasty generalizing in medical science. Some writers have maintained, that a certain state of rigidity of the limbs is distinctly characteristic of ramollissement of the brain; and others consider every modification of fever as depending upon inflammation of the gastro-intestinal membrane. This rigidity of the limbs is a frequent occurrence in ramollissement of the brain; and, in many cases of fever, there is disease of the gastro-intestinal membrane. As a part of the history of the affections, therefore, these are important facts; but they are not true of all the cases of ramollissement and of fever, and consequently cannot be admitted as general principles, in reference to these affections;—for, though they are facts, the facts are not universal.

In a science such as medicine, indeed, requiring an accumulation of facts which must often be the result of the labour of ages, partial generalizing may sometimes be admitted merely as a help to the memory; provided we keep constantly in view the imperfect nature of such deductions, and be constantly at-

tentive to correct them by farther observations. But, when imperfect results of this kind are received as established principles, they retard our progress in search of truth, or even lead us farther and farther away from it. The confidence is truly remarkable with which such premature deductions in medicine are brought forward, and the facility with which they are often received, without examination, as established principles;—much laborious investigation indeed is often devoted to no other purpose than showing them to be fallacious. The zeal for hypothetical systems is considerably gone by; but this tendency to unsound generalizing must be viewed as one of the chief errors which at present retard the progress of medical science; and it may, perhaps, be contended, that medicine will never attain a place among the inductive sciences, till inquirers agree to act steadily upon the rule, that every medical doctrine shall be a fact, and that the fact shall be universal.

There are two respects in which a fondness for generalizing, in medicine, may be abused, and may lead to errors of a practical nature. The one consists in assuming a fact as general, which is not really true of all the individual cases;—various examples of this have been already referred to. The other arises from extending a fact or principle which is true of one class of cases, to others with which it is not connected. Thus, a medical man, who decides upon general principles, without attending to indi-

vidual facts, may pronounce a patient to labour under consumption, when he perceives expectoration of a purulent character. Admitting that purulent expectoration may occur in all cases of consumption, the sound observer knows, that it is not confined to this disease, but also occurs in others of a much less dangerous character.

For a legitimate theory, then, it is required, that the principle which is assumed be true, and that it be common to all the cases. But there are certain instances, in which a principle ascertained to be true, in regard to one set of cases, may be extended by conjecture to others, in regard to which its existence is only hypothetical. This may be called legitimate hypothesis, or anticipation of principles; and it differs in this respect from the fictitious theories already referred to, that it is liable to be either established or overturned by the progress of observation. In this manner, the theory of gravitation was hypothetically extended to the motions of the heavenly bodies, long before the observations of Newton had actually established the truth of the doctrine; and the same principle is of legitimate use in medical investigations. Thus, there has been some difference of opinion in regard to the origin of the affection which is called ramollissement of the brain; and a conjecture has been offered, that it is a result of inflammation in that particular structure. Now this, at first, was mere hypothesis or conjecture; but it was hypothesis

only in regard to the relation of facts, or the application of a known principle. For the principle which is assumed, namely, inflammation, is a real and true principle; its relation to this particular affection is the hypothesis. It is such an hypothesis, or anticipation of a principle, as serves to guide us in observation, and which, by such observation, is likely to be soon either established or overturned. Hypothesis of this kind is to be considered as a legitimate guide to inquiry, and may be of extensive use in medicine, when kept under proper regulation. But it is to be regretted, that such conjectures, if brought forward with confidence, are too often received without farther investigation, as established principles. In this manner, the proper use of them is entirely lost, and they rather lead to error and fallacy.

The laws in regard to such hypotheses, therefore, are, that they shall be considered as nothing more than conjecture, until such observations or experiments have been made as are sufficient to ascertain their truth; and that, if they are not thus verified, they shall be instantly abandoned. To the process now mentioned, some writers have proposed to apply the term theory, as distinct from hypothesis; and to restrict the latter term to the fictitious principles formerly mentioned, namely, those which cannot be proved to have any real existence. Others apply the term hypothesis to both kinds of principles, whether fictitious or legitimate, and call the

latter a theory, only after its truth has been established. But the fact seems to be, that the two terms are used in philosophical writings, in an undefined and indiscriminate manner.

In every scientific investigation, it is to be kept in mind, that efficient causes are beyond our reach. The objects of our research are physical causes only, by which we mean nothing more than the uniform sequences of events as ascertained by extensive observation. What we call the explanation of phenomena, consists in being able to trace distinctly all the links of such a chain of sequences, so as to perceive their uniform relation to each other. Thus, there may be many instances in which we are acquainted with facts forming part of such a chain, and are satisfied that they are so connected, while we cannot explain their connexion. This is occasioned by the want of some fact which forms an intermediate part of the chain, and the discovery of which would enable us to see the relation of the whole sequence, or, in common language, to explain the phenomena. Such a chain of facts was, at one time, presented by the rise of water in a vacuum to the height of thirty-two feet. The circumstances were well known, as well as their uniform relation, that is to say, the fact of a vacuum,—the fact of the water rising,—and the fact of this uniformly taking place. But the phenomenon could not be explained; for an intermediate fact was required to show

the manner in which these known facts were connected. The doctrine of nature abhorring a vacuum afforded no explanation, for it furnished no fact; but the fact required was supplied by the discoveries of Torricelli on atmospheric pressure. The chain of events was then filled up, or, in common language, the phenomenon was accounted for.

There are, indeed, many cases in which the investigation of intermediate events in the chain of sequences is beyond our reach. In these, we must be satisfied with a knowledge of the facts, and their actual connexion as we observe them, without being able to trace the events on which the connexion depends. This happens in some of the great phenomena of nature, such as gravitation and magnetism. We know the facts, but we cannot account for them; that is, we are ignorant of certain intermediate facts by which those we do know are connected together. If, in such cases, we amuse ourselves with visionary hypothesis or conjecture, instead of facts, we wander from the path of philosophical inquiry. Of this nature were the vortices of Des Cartes, and the doctrine of an invisible ether, which was at one time proposed to explain the phenomena of gravitation. Other examples of the same kind are to be met with in the old philosophy; and those who are acquainted with the history of medicine need not be told, that such speculations have also been frequent in medical science.

If we would contribute something towards diminishing the uncertainty of medical researches, and introducing a greater degree of precision into medical reasonings, there are certain rules which we ought to keep steadily in view, both in conducting our own inquiries, and in examining the investigations of others. These may be briefly recapitulated in the following manner, as arising out of the preceding observations.

I. We should endeavour to have all our terms fully and distinctly defined. If we speak, for example, of a person being bilious, or labouring under biliary derangement, or derangement of the chylopoietic viscera, let it be explained what particular condition of the biliary or digestive organs we mean to express by these terms; or, if this cannot be done, let it at least be clearly understood, what particular symptoms we include under them. The same observation applies to various other terms of an equally indefinite character, which have been formerly mentioned. If they were defined in this manner, they would be merely names, and no harm could result from the use of them; but, as they are frequently employed, they seem to have no explicit signification.

II. In making a statement of facts, or examining a statement made by another person, we should be

satisfied that the facts are authentic,—that they are fully and fairly stated,—and that no important facts are left out of view, disguised, or modified. It is also necessary that no facts be taken into the statement, which are not really connected with the subject. I formerly alluded to examples of this last error,—appearances being considered as indicating diseases of internal organs, which are incidental or trivial, perhaps taking place after death, or under circumstances not connected with diseased action.

III. When we find two events placed in a state of contiguity to each other, we should use the utmost caution in considering them as connected in the manner of cause and effect. Nothing warrants us in assuming this relation, but such an extent of observation as shows the connexion to be constant and uniform; and we should keep in view the various sources of fallacy, formerly referred to, which encompass the whole subject of medical causation.

IV. In deducing general conclusions, or general doctrines, we must beware, on the one hand, of assuming imaginary principles which cannot be proved really to exist; and, on the other, of deducing principles or doctrines from a limited number of facts. We must remember that such deductions are of no value, unless they are invariably true in regard to all the cases to which they are meant to refer.

V. In examining a statement made by any writer, there is cause for exercising similar caution. The credibility of a narrator of medical statements does not rest upon his veracity only, or the total absence of any intention to deceive. With perfect sincerity and conviction of the truth of what he delivers, he may present fallacious statements. This may happen from a partial narration of facts,—from unsound causation,—and from delivering as equivalent to a fact what is really a general statement. In regard to these, we require to be satisfied, not only of his veracity, but of his habits as an observer, and the extent of the observations on which his statement is founded. In all cases of this kind, therefore, we ought to exercise such a mental process as the following.

1. Are the terms which the author employs fully and distinctly defined; and are they employed in the usual and recognised meaning.

2. Are the facts authentic; are they fully and fairly stated; do they all relate to the subject; have we reason to suspect, that any important facts have been omitted, disguised, or modified, or that facts have been collected on one side only of a question; does the statement include any points which, though called facts, are merely assumptions requiring to be proved.

3. What events does the author consider as con-

nected in the manner of cause and effect;—have we reason to believe that this relation has been assumed upon an extent of observation which proved it to be constant and uniform:—What does he propose as general principles or doctrines; are these facts; and are they true in regard to all the cases to which he applies them.

4. What are the new conclusions which he proposes to deduce from his whole view of the subject; and are these legitimate deductions from such of his premises as we admit to be authentic.

The rules thus shortly proposed, I submit as those which ought to guide us in all our inquiries. Without constant attention to them, numerous facts may pass before us, from which we can derive no real knowledge; and many ingenious and plausible doctrines may be presented, which tend only to lead us into error. In the same manner, the benefit which a physician derives from his own opportunities of observation, in common language called his experience, is not in proportion to the period of time over which it has extended, or the number of facts which have passed under his view. It must depend on the attention with which he has observed these facts, and traced their relations to each other, on the anxiety with which he has separated incidental relations from those which are uniform,—and the caution with which he has ventured on assuming the relation of

cause and effect, or has advanced to general principles. It must depend, farther, on the jealousy and suspicion with which he has received even his own conclusions, and the care with which he has corrected them from time to time by farther observations. Finally, it must depend on the judgment with which he applies the knowledge thus acquired to the investigation and treatment of new cases,—by tracing promptly the points of affinity between the case under his view, and those cases on which his knowledge was founded;—by discovering real points of resemblance where there is an apparent difference, and real points of difference where there is an apparent resemblance. The farther a physician advances in this course of rigid inquiry, he becomes more sensible of the difficulties with which his science is encumbered, more suspicious of all general conclusions, and more anxious to bring them to the test of minute and extensive observation;—in particular, he learns to exercise more and more caution in considering any one event in medicine as the cause of another. In real acquisition, consequently, his progress is slow; for much of his improvement consists in detecting the fallacy of systems which he once considered as established, and the instability of principles in which he once confided as infallible. But these discoveries prepare the way for his actual progress, and the conclusions at which he does arrive then fall upon his mind with all the authority of truth.

PART V.

VIEW OF THE QUALITIES AND ACQUIREMENTS WHICH CONSTITUTE A WELL-REGULATED MIND.

In concluding this outline of facts regarding the intellectual powers and the investigation of truth, we may take a slight review of what those qualities are which constitute a well-regulated mind, and which ought to be aimed at by those who desire either their own mental culture, or that of others who are under their care. The more important considerations may be briefly recapitulated in the following manner:

I. The cultivation of a habit of steady and conti-

nuous attention; or of properly directing the mind to any subject which is before it, so as fully to contemplate its elements and relations. This is necessary for the due exercise of every other mental process, and is the foundation of all improvement of character, both intellectual and moral. We shall afterwards have occasion to remark, how often sophistical opinions and various distortions of character may be traced to errors in this first act of the mind, or to a misdirection and want of due regulation of the attention. There is, indeed, every reason to believe, that the diversities in the power of judging, in different individuals, are much less than we are apt to imagine; and that the remarkable differences, observed in the act of judging, are rather to be ascribed to the manner in which the mind is previously directed to the facts, on which the judgment is afterwards to be exercised. It is related of Sir Isaac Newton, that, when he was questioned respecting the mental qualities which formed the peculiarity of his character, he referred it entirely to the power which he had acquired of continuous attention.

II. Nearly connected with the former, and of equal importance, is a careful regulation and control of the succession of our thoughts. This remarkable faculty is very much under the influence of cultivation, and on the power so acquired depends the important habit of regular and connected

thinking. It is primarily a voluntary act; and, in the exercise of it in different individuals, there are the most remarkable differences. In some, the thoughts are allowed to wander at large, without any regulation,—or are devoted only to frivolous and transient objects; while others habitually exercise over them a stern control,—directing them to subjects of real importance, and prosecuting these in a regular and connected manner. This important habit gains strength by exercise, and nothing, certainly, has a greater influence in giving tone and consistency to the whole character. It may not, indeed, be going too far to assert, that our condition, in the scale both of moral and intellectual beings, is, in a great measure, determined by the control which we have acquired over the succession of our thoughts, and by the subjects on which they are habitually exercised.

The regulation of the thoughts is, therefore, a high concern;—in the man who devotes his attention to it as a study of supreme importance, the first great source of astonishment will be, the manner in which his thoughts have been occupied in many an hour and many a day that has passed over him. The leading objects to which the thoughts may be directed are referable to three classes. (1.) The ordinary engagements of life, or matters of business, with which every man is occupied in one degree or another,—including concerns of domestic arrangement,

personal comfort, and necessary recreation. Each of these deserves a certain degree of attention, but this requires to be strictly guided by its real and relative importance; and it is entirely unworthy of a sound and regulated mind to have the attention solely or chiefly occupied with matters of personal comfort, or of trivial importance calculated merely to afford amusement for the passing hour. (2.) Visions of the imagination built up by the mind itself when it has nothing better to occupy it. The mind cannot be idle, and, when it is not occupied by subjects of a useful kind, it will find a resource in those which are frivolous or hurtful,—in mere visions, waking dreams, or fictions, in which the mind wanders from scene to scene, unrestrained by reason, probability, or truth. No habit can be more opposed to a healthy condition of the mental powers;—and none ought to be more carefully guarded against by every one who would cultivate the high acquirement of a well-regulated mind. (3.) Entirely opposed to the latter of these modes, and distinct also in a great measure from the former, is the habit of following out a connected chain of thought on subjects of importance and of truth, whenever the mind is disengaged from the proper and necessary attention to the ordinary transactions of life. The particular subjects to which the thoughts are directed, in cultivating this habit, will vary in different individuals; but the consideration of the relative value of them does not

belong to our present subject. The purpose of these observations is simply to impress the value of that regulation of the thoughts, by which they can always find an occupation of interest and importance, distinct from the ordinary transactions of life, or the mere pursuit of frivolous engagements,—and also totally distinct from that destructive habit by which the mind is allowed to run to waste, amid visions and fictions unworthy of a waking man.

III. The cultivation of an active inquiring state of mind, which seeks for information from every source that comes within its reach, whether in reading, conversation, or personal observation. With this state of mental activity ought to be closely connected attention to the authenticity of facts so received,—avoiding the two extremes of credulity and scepticism.

IV. The habit of correct association;—that is, connecting facts in the mind according to their true relations, and to the manner in which they tend to illustrate each other. This, as we have formerly seen, is one of the principal means of improving the memory, particularly of the kind of memory which is an essential quality of a cultivated mind, namely, that which is founded, not upon incidental connexions, but on true and important relations. Nearly allied to this, is the habit of reflection, or of tracing care-

fully the relations of facts, and the conclusions and principles which arise out of them. It is in this manner, as was formerly mentioned, that the philosophical mind often traces remarkable relations, and deduces important conclusions; while, to the common understanding, the facts appear to be very remote or entirely unconnected.

V. A careful selection of the subjects to which the mind ought to be directed. These are, in some respects, different in different persons, according to their situations in life;—but there are certain objects of attention which are peculiarly adapted to each individual,—and there are some which are equally interesting to all. In regard to the latter, an appropriate degree of attention is the part of every wise man;—in regard to the former, a proper selection is the foundation of excellence. One individual may waste his powers in that desultory application of them, which leads to an imperfect acquaintance with a variety of subjects; while another allows his life to steal over him, in listless inactivity, or application to trifling pursuits. It is equally melancholy to see high powers devoted to unworthy objects, such as the contests of party on matters involving no important principle, or the subtleties of sophistical controversy. For rising to eminence in any intellectual pursuit, there is not a rule of more essential importance than that of doing one thing

at a time,—avoiding distracting and desultory occupations,—and keeping a leading object habitually before the mind, as one in which it can at all times find an interesting resource, when leisure from necessary avocations allows the thoughts to recur to it. A subject which is cultivated in this manner, not by regular periods of study merely, but as an habitual object of thought, rises up and expands before the mind in a manner which is altogether astonishing. If, along with this habit, there be cultivated the practice of constantly writing such views as arise, we perhaps describe that state of mental discipline, by which talents of a very moderate order may be applied in a conspicuous and useful manner to any subject to which they are devoted. Such writing need not be made at first with any great attention to method, but merely put aside for future consideration; and, in this manner, the different departments of a subject will develop and arrange themselves as they advance, in a manner equally pleasing and wonderful.

VI. A due regulation and proper control of the imagination;—that is, restricting its range to objects which harmonize with truth, and are adapted to the real state of things with which the individual is or may be connected. We have seen how much the character is influenced by this exercise of the mind;—that it may be turned to purposes of the

greatest moment, both in the pursuits of science, and in the cultivation of benevolence and virtue;—but that, on the other hand, it may be so employed as to debase both the moral and intellectual character.

VII. The cultivation of calm and correct judgment,—applicable alike to the formation of opinions and the regulation of conduct. This is founded, as we have seen, upon the habit of directing the attention, distinctly and steadily, to all the facts and considerations bearing upon a subject;—and it consists in contemplating them in their true relations,—and assigning to each the degree of importance of which it is worthy. This mental habit tends to guard us against forming conclusions, either with listless inattention to the views by which we ought to be influenced, or with attention directed to some of these, while we neglect others of equal or greater importance. It is therefore opposed to the influence of prejudice and passion,—to the formation of sophistical opinions,—to party spirit,—and to every propensity which leads to the adoption of principles on any other ground than calm and candid examination, guided by sincere desire to discover the truth. In the purely physical sciences, distorted opinions are seldom met with, or make little impression,—because they are brought to the test of experiment, and thus their fallacy is exposed. But it is otherwise in those departments which do not admit of this remedy.

Sophisms and partial inductions are, accordingly, met with in medicine, political economy, and metaphysics; and too often in the still higher subjects of morals and religion. In the economy of the human mind, it is indeed impossible to observe a more remarkable phenomenon, than the manner in which a man, who, in the ordinary affairs of life, shows the general characters of a sound understanding, can thus resign himself to the influence of an opinion founded upon partial examination. He brings ingeniously to the support of his dogma every fact and argument that can possibly be turned to its defence; and explains away or overlooks every thing that tends to a different conclusion; while he appears anxious to convince others, and really seems to have persuaded himself, that he is engaged in an honest investigation of truth. This propensity gains strength by indulgence, and the mind which has yielded to its influence advances from one pretended discovery to another,—mistaking its own fancies for the sound conclusions of the understanding, until it either settles down into some monstrous sophism, or perhaps concludes by doubting of every thing.

The manner in which the most extravagant opinions are maintained, by persons who give way to this abuse of their powers of reasoning, is scarcely more remarkable than the facility with which they often find zealous proselytes. It is indeed difficult to trace the principles by which various individuals

are influenced, in thus surrendering their assent, with little examination,—often on subjects of the highest importance. In some, it would appear to arise from the mere pleasure of mental excitement; in others, from the love of singularity, and the desire of appearing wiser than their neighbours; while, in not a few, the will evidently takes the lead in the mental process,—and opinions are seized upon with avidity, and embraced as truth, which recommend themselves to previously existing inclinations of the heart. But, whatever may be the explanation, the influence of the principle is most extensive; and sentiments of the most opposite kinds may often be traced to the facility with which the human mind receives opinions which have been presented to it by some extrinsic influence. This influence may be of various kinds. It may be the power of party,—or the persuasion of a plausible and persevering individual:—it may be the supposed infallibility of a particular system;—it may be the mere empire of fashion,—or the pretensions of a false philosophy. The particular result, also, may differ, according as one or other of these causes may be in operation. But the intellectual condition is the same; and the distortion of character which arises out of it, whether bigotry, superstition, or scepticism, may be traced to a similar process;—namely, to an influence which directs the mind upon some other principle than a candid investigation of truth.

In a similar manner, we may perhaps account for the facts,—that the lowest superstition, and the most daring scepticism, frequently pass into each other ; and that the most remarkable examples of both are often met with in the same situations, namely, those in which the human mind is restrained from free and candid inquiry. On the other hand, it would appear, that the universal toleration, and full liberty of conscience, which characterize a free and enlightened country, are calculated to preserve from the two extremes of superstition and scepticism. In other situations, it is striking to remark how often those, who revolt from the errors of a false faith, take refuge in infidelity.

The mental qualities which have been referred to in the preceding observations, constituting an active, attentive, and reflecting mind, should be carefully cultivated by all who desire their own mental improvement. The man who has cultivated them with adequate care, habitually exercises a process of mind which is equally a source of improvement and of refined enjoyment. Does a subject occur to him, either in conversation or reflection, in which he feels that his knowledge is deficient, he commences, without delay, an eager pursuit of the necessary information. In prosecuting any inquiry, whether by reading or observation, his attention is acutely alive to the authenticity of facts,—the validity of arguments, —the accuracy of processes of investigation,—prin-

ciples which are illustrated by the facts,—and conclusions deduced from them,—the character of observers,—the style of writers ;—and thus, all the circumstances which come before him, are made acutely and individually the objects of attention and reflection. Such a man acquires a confidence in his own powers and resources, to which those are strangers who have not cultivated this kind of mental discipline. The intellectual condition arising out of it is applicable alike to every situation in which a man can be placed,—whether the affairs of ordinary life, —the pursuits of science,—or those higher inquiries and relations which concern him as a moral being.

In the affairs of ordinary life, this mental habit constitutes what we call an intelligent reflecting man, whose attention is alive to all that is passing before him,—who thinks acutely and eagerly on his own conduct and that of others,—and is constantly deriving useful information and subjects of reflection, from occurrences, which, by the listless mind, are passed by and forgotten. This habit is not necessarily connected with acquired knowledge, or with what is commonly called intellectual cultivation ; but is often met with, in a high degree, in persons whose direct attainments are of a very limited kind. It is the foundation of caution and prudence in the affairs of life, and may perhaps be considered as the basis of that quality, of more value to its possessor than any of the sciences, which is

commonly called sound good sense. It is the origin, also, of what we call presence of mind,—or a readiness in adapting resources to circumstances. A man of this character, in whatever emergency he happens to be placed, forms a prompt, clear, and defined judgment of the conduct or expedient which the situation requires, and acts with promptitude upon his decision. In both these respects, he differs equally from the listless inactivity of one description of men, and the rash, hasty, and inconsiderate conduct of another. He differs not less from characters of a third class, who, though they may be correct in their judgment of what ought to be done, arrive at their decision, or act upon it, too slowly for the circumstances, and consequently are said, according to a common proverb, to be wise behind time. The listless and torpid character, indeed, may occasionally be excited by emergencies, to a degree of mental activity which is not natural to him; and this is, in many instances, the source of a readiness of conception, and a promptitude in action, which the individual does not exhibit in ordinary circumstances.

In the pursuits of science these mental qualities constitute observing and inventive genius,—two conditions of mind which lie at the foundation of all philosophical eminence. By *Observing Genius*, I mean that habit of mind by which the philosopher not only acquires truths relating to any subject, but arranges and generalizes them in such a manner, as

to show how they yield conclusions which escape the mere collector of facts. He likewise analyzes phenomena, and thus traces important relations among facts, which, to the common mind, appear very remote and dissimilar. I have formerly illustrated this, by the manner in which Newton traced a relation between the fall of an apple from a tree, and those great principles which regulate the movements of the heavenly bodies.—By *Inventive Genius*, again, I mean that active, inquiring state of mind, which not only deduces, in this manner, principles from facts when they are before it, but which, grasping after principles by eager anticipation, makes its own conjectures the guides to observation and experiment. This habit of mind is peculiarly adapted to the experimental sciences; and in these, indeed, it may be considered as the source of the most important discoveries. It leads a man, not only to observe and connect the facts, but to go in search of them, and to draw them, as it were, out of that concealment in which they escape the ordinary observer. In doing so, he takes for his guides certain conjectures or assumptions which have arisen out of his own intense contemplation of the subject; and then commences a course of experiments or observations calculated to ascertain their truth. By these, his conjectures may be found as often false as true; but, if found false, they are instantly abandoned; and, by such a course of active inquiry, he at length

arrives at the development of truth. From him are to be expected discoveries which elude the observation, not of the vulgar alone, but even of the philosopher, who, without cultivating this habit of invention, is satisfied with tracing the relation of facts, as they happen to be brought before him by the slower course of testimony, or occasional observation. The man, on the other hand, who only amuses himself with conjectures, and rests satisfied in them without proof, is the mere visionary or speculatist, who injures every subject to which his speculations are directed.

In the concerns which relate to man as a moral being, this active, inquiring, and reflecting habit of mind is not less applicable than in matters of inferior moment. The man who cultivates it directs his attention intensely and eagerly to the great truths which belong to his moral condition,—seeks to estimate distinctly his relation to them, and to feel their influence upon his moral principles. This constitutes the distinction between the individual who merely professes a particular creed, and him who examines it till he makes it a matter of understanding and conviction, and then takes its principles as the rule of his emotions and the guide of his conduct. Such a man also contemplates, in the same manner, his relations to other men ;—questions himself rigidly regarding the duties which belong to his situation, and his own observance of them. He contemplates

others with a kind of personal interest,—enters into their wants and feelings, and participates in their distresses. In all his relations, whether of justice, benevolence, or friendship, he acts, not from mere incidental impulse, but upon clear and steady principles. In this course of action, many may go along with him when the requirements of the individual case are pointed out and impressed upon them; but that in which the mass of mankind are wanting, is the state of mental activity, which eagerly contemplates its various duties and relations, and thus finds its way to the line of conduct appropriate to the importance of each of them.

VIII. For a well-regulated understanding, and particularly for the application of it to inquiries of the highest import, there is indispensably necessary a sound condition of the moral feelings. This important subject belongs properly to another department of mental science; but we have seen its extensive influence on the due exercise of the intellectual powers;—and it is impossible to lose sight of the place which it holds in the general harmony of the mental functions, required for constituting that condition, of greater value than any earthly good, which is strictly to be called a well-regulated mind. This high attainment consists not in any cultivation, however great, of the intellectual powers, but requires also a corresponding and harmonious culture of the

benevolent affections and moral feelings;—a due regulation of the passions, emotions, and desires;—and a full recognizance of the supreme authority of conscience over the whole intellectual and moral system. Cold and contracted, indeed, is that view of man which regards his understanding alone; and barren is that system, however wide its range, which rests in the mere attainment of truth. The highest state of man consists in his purity as a moral being; and in the habitual culture and full operation of those principles by which he looks forth to other scenes and other times. Among these are desires and longings, which nought in earthly science can satisfy; which soar beyond the sphere of sensible things, and find no object worthy of their capacities, until, in humble adoration, they rest in the contemplation of God. Truths then burst upon the mind, which seem to rise before it in a progressive series, each presenting characters of new and mightier import. The most aspiring understanding, awed by the view, feels the inadequacy of its utmost powers; yet the mind of the humble inquirer gains strength as it advances. There is now felt, in a peculiar manner, the influence of that healthy condition of the moral feelings, which leads a man not to be afraid of the truth. For, on this subject, we are never to lose sight of the remarkable principle of our nature, formerly referred to, by which a man comes to reason himself into the belief of what he wishes to be true,

—and shuts his mind against, or even arrives at an actual disbelief of, truths which he fears to encounter. It is striking also to remark, how closely the philosophy of human nature harmonizes with the declarations of the sacred writings;—where this condition of mind is traced to its true source, in the corruption of the moral feelings, and is likewise shown to involve a high degree of guilt, in that rejection of truth which is its natural consequence;—"This is the condemnation, that light is come into the world, and men loved darkness rather than light, because their deeds were evil. For every one that doeth evil hateth the light, neither cometh to the light, lest his deeds should be reproved. But he that doeth truth, cometh to the light, that his deeds may be made manifest, that they are wrought in God."

This condition of mind presents a subject of intense interest, to every one who would study his own mental condition, either as an intellectual or a moral being. In each individual instance, it may be traced to a particular course of thought and of conduct, by which the mind went gradually more and more astray from truth and from virtue. In this progress, each single step was felt to be a voluntary act; but the influence of the whole, after a certain period, is to distort the judgment, and deaden the moral feelings on the great questions of truth and rectitude. Of this remarkable phenomenon in the economy of

man, the explanation is beyond the reach of our faculties; but the facts are unquestionable, and the practical lesson to be derived from them is of deep and serious import. The first volition, by which the mind consciously wanders from truth, or the moral feelings go astray from virtue, may impart a morbid influence which shall perpetuate itself and gain strength in future volitions, until the result shall be to poison the whole intellectual and moral system. Thus, in the wondrous scheme of sequences which has been established in the economy of the human heart, one volition may impart a character to the future man,—the first downward step may be fatal.

Every candid observer of human nature must feel this statement to be consistent with truth; and by a simple and legitimate step of reasoning, a principle of the greatest interest seems to arise out of it. When this loss of harmony among the mental faculties has attained a certain degree, we do not perceive any power, in the mind itself, capable of correcting the disorder which has been introduced into the moral system. Either, therefore, the evil is irremediable and hopeless, or we must look for an influence from without the mind, which may afford an adequate remedy. We are thus led to discover the adaptation and the probability of the provisions of the Christian revelation, where an influence is indeed disclosed to us, capable of restoring the harmony which has been destroyed, and of raising man anew to the sound and

healthy condition of a moral being. We cannot perceive any improbability, that the Being, who framed the wondrous fabric, may thus hold intercourse with it, and provide a remedy for its moral disorders; and thus a statement, such as human reason never could have anticipated, comes to us invested with every element of credibility and of truth.

The sound exercise of the understanding, therefore, is closely connected with the important habit of looking within; or of rigidly investigating our intellectual and moral condition. This leads us to inquire what opinions we have formed, and upon what grounds we have formed them;—what have been our leading pursuits,—whether these have been guided by a sound consideration of their real value,—or whether important objects of attention have been lightly passed over, or entirely neglected. It leads us farther to contemplate our moral condition,—our desires, attachments and antipathies;—the government of the imagination, and the regimen of the heart;—what is the habitual current of our thoughts;—and whether we exercise over them that control which indicates alike intellectual vigour and moral purity. It leads us to review our conduct, with its principles and motives, and to compare the whole with the great standards of truth and rectitude. This investigation is the part of every wise man. Without it, an individual may make the greatest attainments in science, may learn to measure the earth and

to trace the course of the stars, while he is entirely wanting in that higher department,—the knowledge of himself.

On these important subjects, I would more particularly address myself to that interesting class, for whom this work is chiefly intended, the younger members of the medical profession. The considerations which have been submitted to them, while they appear to carry the authority of truth, are applicable, at once, to their scientific investigations, and to those great inquiries, equally interesting to men of every degree, which relate to the principles of moral and religious belief. On these subjects, a sound condition of mind will lead them to think and judge for themselves, with a care and seriousness adapted to the solemn import of the inquiry, and without being influenced by the dogmas of those who, with little examination, presume to decide with confidence on matters of eternal moment. Of the modifications of that distortion of character which has commonly received the name of cant, the cant of hypocrisy has been said to be the worst; but there is another which may fairly be placed by its side, and that is the cant of infidelity,—the affectation of scoffing at sacred things, by men who have never examined the subject, or never with an attention in any degree adequate to its momentous importance. A well-regulated mind must at once perceive that this is alike unworthy of sound sense and sound philosophy. If we require

the authority of names, we need only to be reminded, that truths which received the cordial assent of Boyle and Newton, of Haller and Boerhaave, are, at least, deserving of grave and deliberate examination. But we may dismiss such an appeal as this; for, nothing more is wanted to challenge the utmost seriousness of every candid inquirer, than the solemn nature of the inquiry itself. The medical observer, in an especial manner, has facts at all times before him which are in the highest degree calculated to fix his deep and serious attention. In the structure and economy of the human body, he has proofs, such as no other branch of natural science can furnish, of the power and wisdom of the Eternal One. Let him resign his mind to the influence of these proofs, and learn to rise, in humble adoration, to the Almighty Being of whom they witness: and, familiar as he is with human suffering and death, let him learn to estimate the value of those truths which have power to heal the broken heart, and to cheer the bed of death with the prospect of immortality.

FINIS.

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