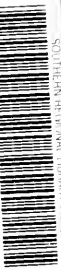


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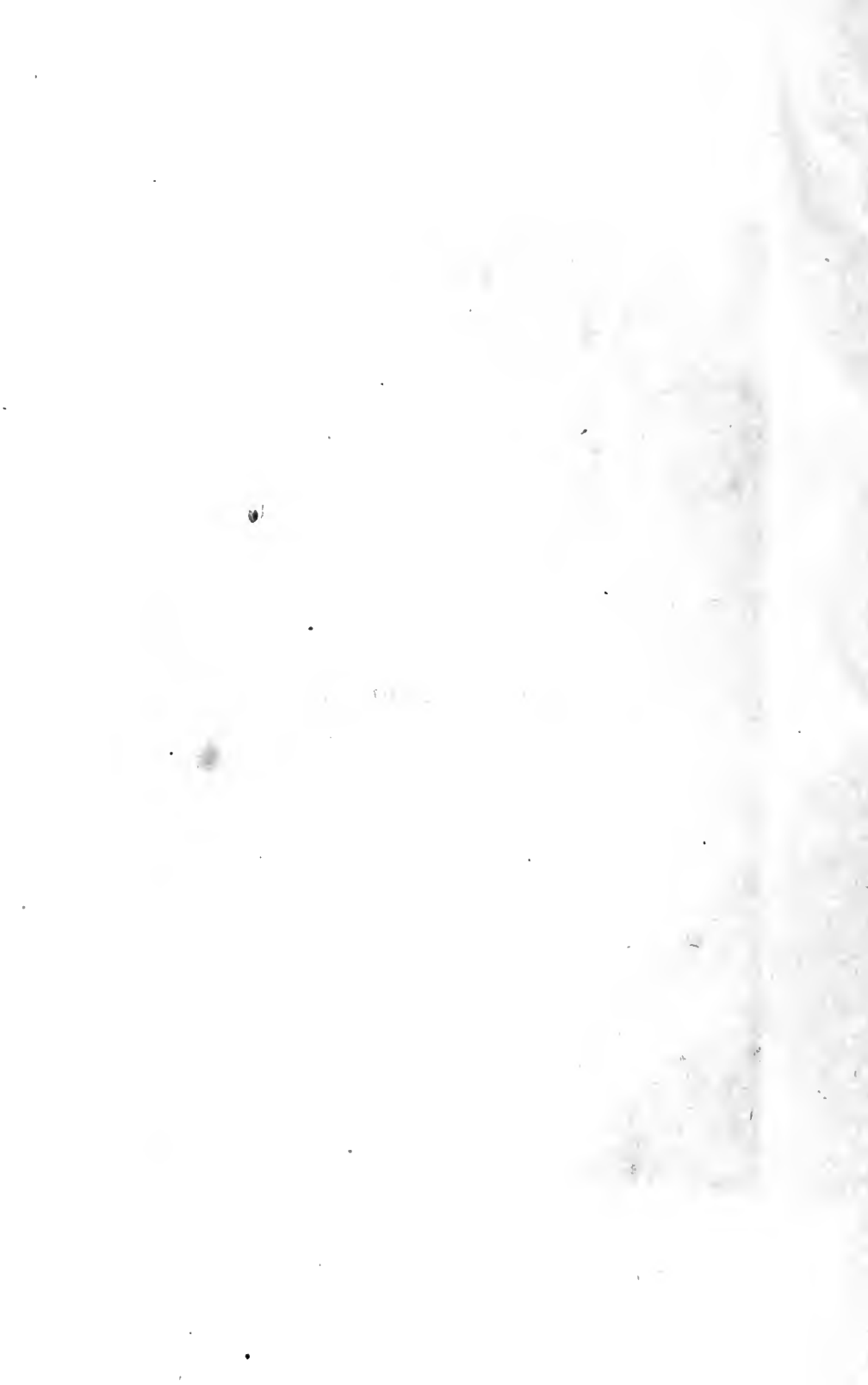
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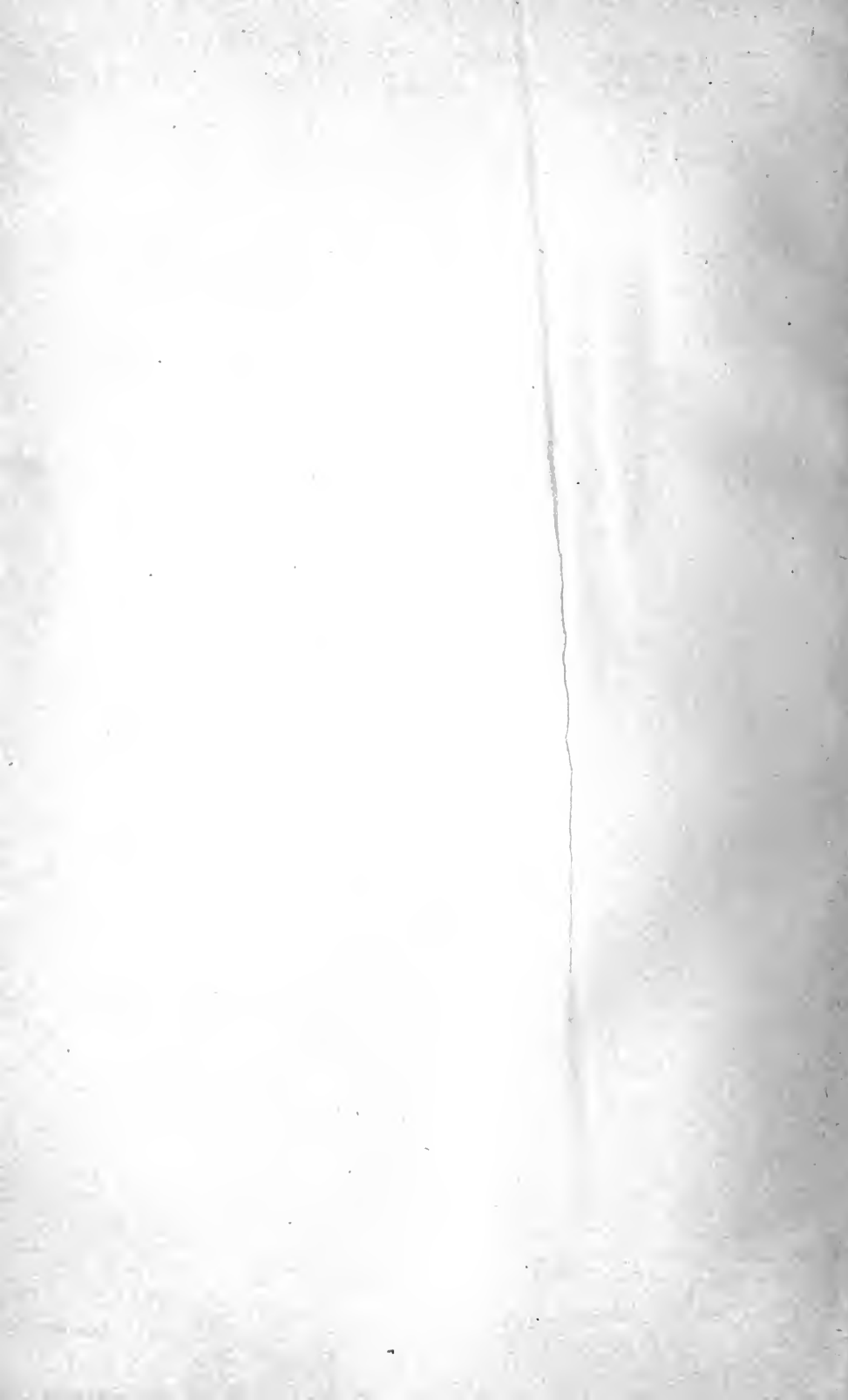
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ORIENTAL RELIGIONS

By JOHN CAIRD, S. T. D.

President of the University of Glasgow;

AND OTHER AUTHORS

RELIGIONS OF INDIA.*

I. VEDIC PERIOD — BRAHMANISM.

THE study of the pre-Christian religions possesses both a practical and a speculative interest for the Christian mind. As he who would teach a child must himself, in a sense, become a child—throw himself back into the childish attitude of mind, and adapt his instructions to its immature conceptions, and even to its vagaries and illusions; so there is a sense in which it may be said that he who seeks to convert a heathen must himself become a heathen—must, by a kind of intellectual self-abnegation, endeavor to throw himself into the point of view of the minds he would elevate, and attain to some measure of sympathy with them. Catholic missionaries have, justly or unjustly, been sometimes accused of gaining a too easy victory for Christianity by assimilating its doctrines to heathen superstitions. But whilst that is only a

nominal conversion which reclaims from heathenism to a Christianity which has itself become heathenish, it may yet be averred that a true conversion can be achieved only by a process of which this is the travesty—not, that is, by tampering with Christian truth, but by discerning and exhibiting its affinities to the unconscious longings and aspirations of the human spirit at all stages of its development.

But the study of the earlier and imperfect forms of faith has another than practical interest for the Christian mind. The maxim of Christian wisdom to which I have referred rests on the principle that there is an essential relation between Christianity and the pre-Christian religions. Even those who shrink from any such notion as that the religious history of the world is the expression of a natural process of development, are not thereby precluded from recognizing in the earlier stages of that history a preparation and propædæutic for the more advanced. It is possible to hold that Christianity is no mere combined

* By Dr. Caird.

result of Jewish and heathen elements, and yet to discern in the characteristic ideas of the pre-Christian religions the germs at least of conceptions of God and of His relations to the world, which find at once their unity and their explanation in our Christian faith. What the great monotheistic and pantheistic faiths of the ancient world were feeling after they failed to reach, for this, apart from other reasons, that their solution of the problem of religion was, in each case, a one-sided and fragmentary one,—that the element of truth which each contained was rendered false because held in isolation from that which is its necessary complement. On the one hand, in a religion which conceives of God simply as the creator and ruler of the world, absolutely exalted above it, unaffected by its limits, incapable of being implicated in its imperfections, the moral sublimity of the conception easily passes into a false elevation if it lacks, as the necessary complement of a power and will transcending the world, the idea of an infinite thought and love which reveals itself *in* it. On the other hand, a religion which sees God in all things—the reality beneath all appearances, the substance of all changeful forms, the all-pervading yet incomprehensible life in which all finite existences live and move and have their being,—such a religion, if its conception of the immanence of God in the world leaves no place for the equally essential idea of His transcendence over the world, speedily discloses its weakness in the obliteration of moral distinctions, and the swamping of finite individuality and freedom. In briefer terms, monotheistic religions are imperfect because they exclude the pantheistic element, pantheistic religions because they lack the monotheistic element. It lends a new force to our appreciation of the nature and spiritual value of the Christian faith if we can discern in it that which at once comprehends and transcends these earlier religions, embracing what is true, and supplying a complement of

what is imperfect, and the corrective of what is false, in both. Whilst, therefore, we may hold that Christianity is neither a reproduction nor a natural development of the imperfect notions of God in which the religious aspirations of the old world embodied themselves, it is possible at the same time to maintain that the study of the old religions sheds new light on the Christian religion, and gives to us a new and deeper sense of its spiritual significance and power.

The religions of which in this and the following lecture we are to treat, belong to one of the two kinds or groups of religions under which, as above indicated in a very rough and general classification, the religions of the pre-Christian world may be embraced. Brahmanism and Buddhism, in other words, are pantheistic religions. What that designation means we shall understand better by tracing the origin and historical development of these religions than by any formal or philosophical definition of the term.

I. A Christian apostle, addressing a heathen audience, tells them that God “hath made of one blood all nations of men, to dwell on the face of the earth; . . . that they should seek the Lord, if haply they might feel after and find Him, though He be not far from every one of us; for in Him we live, and move, and have our being.” If we ask what we mean by the word “religion,” or why amongst the manifold elements of human experience, we characterize one particular kind of experience as “religious,” perhaps no better answer could be given than in these words of St. Paul. Religion is that attitude of the human spirit, and its outward manifestations and expressions, in which, in all races and climes, we see it “feeling after God, if haply it may find Him.” We are the offspring of God.” In the very essence of man’s nature as a spiritual being there is that which renders it impossible for him to rest in the things that are seen and

temporal, which forces him to rise above the world of finite and transitory experience, of ever-changing forms and appearances, and to seek after an infinite reality which underlies and transcends them. Within the rudest and most undeveloped nature made in the image of God, there is a latent capacity of transcending the finite, an inalienable affinity to what is universal and infinite; and it is this which constitutes the secret impulse to the search after God, and the key to the outward phenomena of the history of religion. It is not of course meant that in all religions men have been consciously seeking after that Being whom we call God, or that already from the beginning the human spirit was in the possession of the idea of Him of whom it was in quest. There is a sense in which the ideal element which constitutes the impulse to many of our human activities is present in the mind of the agent from the very outset of his endeavors to apprehend it. All art is the endeavor to realize in material forms and colors an idea of beauty latent in the human spirit from the beginning. All science may be viewed as, in one sense, only the gradual appropriation by the mind of its own latent wealth, the realization of a belief in the systematic unity and continuity of nature, presupposed in, and constituting at once the impelling motive and the measure of each successive discovery; and all knowledge in general, even the most elementary, presumes in the knowing mind of what is knowable, a standard or criterion of truth which is the measure of all particular opinions and acquirements, and which itself cannot be questioned without self-contradiction. In like manner the reason why we isolate certain facts of human history as belonging to that province which we designate "religion," is, that these facts are the witness to an essential relation of the human spirit to the infinite—the attempts, more or less perfect, to give expression and realization to that la-

tent consciousness of an infinite Being and Life which is bound up with man's very nature as a rational and spiritual being.

Now, if we ask in what way this hidden element, this implicit consciousness of God, begins to manifest or realize itself—what, in other words, is the earliest form of religion, or of anything that truly deserves the name, in the history of the race—the answer, I think, is supplied to us by the early religions of India. I have said that these religions belong to a class which we designate pantheistic religions. But at first sight the religion which is represented by the sacred hymns of the Veda seems to be a polytheistic nature-worship—the worship, that is, of a number of distinct divinities identified with different natural objects and appearances—such as the sun, the dawn, the daily and nightly firmament, the fertile earth, the winds and storms. The Rig-Veda, which embodies the early religious conceptions of the Indo-Aryan race, and which carries us back to a period of from 1000 to at least 1500 B.C., is a collection of hymns, invocations, prayers, songs of praise addressed to various individual devas or divinities—Indra, Mitra, Varuna, Ushas, Agni, etc.—who seem at first sight to be personifications or deifications of the phenomena and forces of nature. It would seem, therefore, that in so far as this form of religion represents the dawn of man's religious life, the origin of religion is to be found not in pantheism, but in a polytheistic nature-worship—the worship of many individual divinities representing or implicated with particular objects, powers and processes of the material world.

But when we look a little more closely into the matter I think we shall find reason to regard the polytheism of the Veda as only the superficial aspect or veil of another and different conception of God—a conception which gradually revealed its real significance as it dropped more and more the polytheistic form and

developed into the undisguised pantheism of Brahmanism and Buddhism. Those who have carefully studied the Vedic hymns, find in them many indications that the multiform character of the objects of worship is only apparent; that the various divinities are marked by no hard and fast line of distinction from each other; and they are in reality only different names for one indivisible whole, of which the particular divinity invoked at any one time is regarded as the type or representative. In the minds of the writers of these hymns we can detect the latent recognition of a unity beneath all this multiplicity of the objects of adoration—an invisible reality which is neither the heavens nor the earth, nor the sunshine, nor the storm, which cannot be fully represented by any one material object or aspect of nature, though each for the moment may serve as its passing symbol or exponent. What we have here is not, as in Greek and Roman mythology, a number of anthropomorphic personalities invested each with a life and character of its own, and having an individual existence and history as distinct from the rest as that of a human king or hero. On the contrary, in the Vedic divinities not only is the personal anthropomorphic element of the faintest, so that the personality ascribed to Dyans, or Varuna, or Indra, or Agni, is scarcely more real than in the thinly veiled metaphors in which modern poetic language speaks of the smiling heavens, or the whispering breeze, or the sullen, moaning, restless sea; but the language in which these various divinities are addressed shows that they flow into each other, and that they are only varied expressions from different points of view for the grander and wider presence of mighty nature—a presence which clothes itself in innumerable guises, but which, however varied, whether soft and gentle, or wild and wrathful, whether it delight or overawe or terrify, is still one and the same. Nay, we find, especially towards the close of the

Vedic period, this instinctive sense of a unity that lies behind and comprehends all individual diversities, finding direct expression in various passages of the Veda. "There is but one," says one of the writers, "though the poets call him by many names." "They call him Indra, Nitra, Varuna, Agni; then he is the beautiful winged Garutmut. That which is, and is one—the wise name in diverse manners" (Rig-Veda, i, 164, quoted by Max Müller, Hibbert Lect., 311). Lastly, there is one divinity in the Vedic Pantheon into which many of the other divinities which are invoked resolve themselves, as only different aspects of the same objects of worship—the divinity which is identified with that part of nature from which as comparative philology has shown, all Aryan languages derive their name for the supreme object of worship—the bright, all-embracing heavens.

And here let us pause for a moment to ask, What is the inward spiritual significance of this Vedic phase of Indian religion? What is the explanation of that attitude of the religious mind which we have just described? Perhaps we shall best understand it by reflecting that that which is probably the first thing to awaken in the human spirit the latent religious consciousness; is the sense of mutability, the evanescence, the unreality, which is the universal characteristic of earthly and finite things. It is only at a later stage of thought that we attempt to rise, after the manner of the modern natural theology argument, from the existence of the world to the notion of a First Cause, or of an all-wise and powerful Creator. It is not what the world is, but what it is *not*, that first stimulates the mind to "feel after" a reality above and beyond it. "The world passeth away, and the lust thereof;" "the things that are seen are temporal;" "our life is but a vapor that appeareth for a little and then vanishes away"—such words as these express a feeling old as the history of man, which is called

up by the fleeting, shifting character of the scene on which we look, the transiency of life, the inadequacy of its satisfactions, the insecurity of its possessions, the lack of any fixed stay, any enduring object on which our thoughts and desires can rest—the feeling, in briefer terms, which the unsubstantiality of the world and the things of the world awakens in the mind, and which irresistibly compels it to seek after some deeper and more enduring reality, some abiding rock on which, amidst the stream that bears all things away, we may plant our feet.

Now it is this sense of the vanity and unreality of the world and of all finite things, which constitutes the elementary form of religious feeling, and the root out of which a pantheistic conception of God gradually develops itself. Indeed it may be said to be in itself the implicit presence of such a conception. For the consciousness of the world's transitoriness and unreality is a negative that involves a positive. We could not be aware of that transitoriness and unreality save by a latent comparison with something that is real and permanent. As the knowledge of error is possible only by reference to at least an implicit standard of truth, so the sense of the nothingness of the finite is due to an implicit consciousness of the Infinite that is rising within the spirit. It is already beginning to say to itself, There is a substance beneath these shadows, a something that is, and abides, underlying all these fleeting, phantasmal forms that only seem to be. But this essentially pantheistic attitude of mind does not at first formulate itself in a positive and fully developed religious belief such as that in which we shall presently find it embodied. The consciousness of weakness and evanescence, and the aspiration after some higher and abiding rest for the spirit, betrays itself at the outset in the ruder and more elementary form of a nature worship such as that which we are now contemplating. The mind indi-

cates that which it is groping after by the deification of whatever objects in the outer world can become to it the types of stability and power. It fastens instinctively on anything in its outward surroundings by which it can represent to itself that reality of which it is in quest. The sun that shines on in majestic strength and calmness far above the capricious, changeful phenomena of the lower world, undimmed and undecaying through the revolving years and ages; the silent stars, that pursue their mystic course, never hastening, never resting, shedding their pure light on the graves of a hundred generations; the solid and stable earth, the everlasting hills, the great rivers that flow on in seemingly exhaustless continuity while one generation after another comes and goes; above all, that in nature which has for the simple observer the aspect of at least a relative infinitude—that all-embracing heavens which, go where he may, is ever above and around him; expanding as he advances, impenetrable in its liquid depths, and amidst the instability and evanescence of human life, retaining the aspect of ever-during permanence, and pouring down with no sign of impoverishment its wealth of bounty on the world;—in the half-conscious deification of these forms and aspects of material nature the obscure and indeterminate longing expresses itself, for some infinite and enduring object of trust—

“Some Life continuous, Being unimpair’d.

That hath been, is, and where it was and is

There shall endure,—existence unexposed
To the blind walk of mortal accident;
From diminution safe and weakening age,
While man grows old and dwindles and decays,

And countless generations of mankind
Depart, and leave no vestige where they trod.”

II. What has now been said as to the spiritual significance of the Vedic phase of Indian religion will become clearer to us when we pass on to con-

template its natural development in Brahmanism. The pantheistic element, which was only implicit in the period of the Vedic hymns, becomes explicit in the Upanishads, in the so-called Indian systems of philosophy, and in the great Indian epic poems. The Upanishads constitute the last portion of the Veda, and consist of compositions in prose and verse (the more ancient of which reach back as far as the sixth century B. C.), which profess to unfold the mystical or secret doctrine of the Veda, and treat of such problems as the nature of God and of the human soul, the origin of the universe, and the connection of matter and spirit. In these treatises, however, we find, mixed up with and almost lost in a mass of mystical notions and absurd puerile conceits, only the germs of those ideas which receive their fullest development in the philosophical systems. These last do not belong to that part of Sanskrit literature which is regarded as having the character of a divine revelation, though growing out of it and based upon it. They attempt to examine in a more systematic way the great metaphysical problems above named; and though the six philosophical schools differ in many important and even fundamental points from each other, not only are there many particular doctrines in which they coincide, but the religious and philosophical point of view from which they start, and which moulds and dominates their teaching, is common to them all. Let us endeavor to see what this fundamental point of view is, and to trace some of its results in the religious and ethical doctrines of Brahmanism.

We have seen that, on closer inspection, the religion of the Veda loses the aspect of the polytheistic nature worship, that the individuality of the separate nature divinities fades away, and that each becomes the symbol or representative of that invisible reality after which the mind is groping, and which any one of these divinities may represent as well

as another. But the same inward movement of the religious spirit which led it to break down the limits which isolated each of the particular divinities from the rest, and so virtually to make nature as a whole, the visible universe in its unbroken completeness, the symbol of the Divinity it sought—this same tendency impelled it, by-and-by, to a still further advance. The religious consciousness, dissatisfied with the effort to reach God by the mediation either of the grander objects of nature, or of nature in its totality, attempts to pass *beyond* nature, and to grasp in an immediate way the idea of an invisible essence or reality lying behind, and transcending all finite and sensible things. "I seem to myself," we can conceive the Hindu seeker after God to reflect, "to be dimly conscious of a reality which is neither the heavens nor the earth, nor anything which the whole complex of nature, the whole sensible world in its most overwhelming aspects of power and grandeur, can reveal to me. When the eye has wearied itself with seeing, and the ear with hearing, and the imagination with the effort to gather up into one all the scattered glories of the visible world, I feel, I know, that that after which I am seeking is something ineffably greater." It is this attitude of mind which is expressed by Brahmanic thought in such utterances as these: "Not by words can we attain unto it, not by the heart, not by the eye. He alone attains to it who exclaims, It is, it is. Thus may it be perceived and apprehended in its essence." "A wise man must annihilate all objects of sense, and contemplate continually only the One Existence which is like space. Brahma is without dimensions, quality, character, or distinction."

The conception of God which is expressed in the words I have just quoted is that which dominates the whole course of Brahmanic thought, and out of which grew the institutions and customs, the moral ideas, and, in one sense, the whole social life, of the

Hinans. There is indeed much in Brahmanism, as in other religions, which is not logically connected with its fundamental doctrine, and which must be ascribed to accident or external conditions; but neither the religion nor the ethics of Brahmanism can be intelligently studied without a distinct apprehension of that doctrine—that is, of the pantheistic idea of God, which from a very early period rooted itself deeply in Hindu thought. Before proceeding further, therefore, let us endeavor to understand what this idea of God is. Pantheism is one of those terms to which, though of familiar use, the vaguest and most contradictory meanings are attached. Perhaps, in the popular or semi popular intelligence, what it generally stands for is the notion or doctrine which identifies the world with God. All things and beings, material and spiritual, organic and inorganic, rational and irrational—stones, rocks, streams, plants, animals, and man himself, with all his bodily and mental powers and capacities—“all thinking things, all objects of all thought”—are God; all of them, in their immediate being, are parts of the divine nature. But this, so far from being the pantheism of the Indian religions, is a notion destitute of any historic foundation, and indeed of any rational meaning. No religion, no philosophy which the world has ever known, did or could entertain it. It is of the very essence of religion, even in its most elementary form, that it involves an elevation *above* the world, above the immediate objects of sense, to something higher. Even the stock or stone, before which the most ignorant idolater bows, is to him something more than a stock or stone. There would arise in his breast no feeling or fear, or awe, or absolute dependence, if he saw nothing more in it than the piece of matter he can touch and handle, if it did not awaken in him some confused conception, at least, of a something which the eye cannot see or the hand grasp—of an immaterial presence or power of which

the material object is only the sign or exponent. Moreover, to make pantheism mean that the finite world is God, is, when we reflect on it, nothing less than a contradiction in terms.

We may say that the finite *represents*, or is the sign or symbol of, the Infinite; but how can we say that the finite world *is*, or that finite things, as such, *are* the Infinite? When we examine into the real meaning of pantheism, as well as the historic significance of the word, we find that it is not only something different from, but the very opposite of, the deification of the finite world. It implies, not the divinity, but rather the nothingness, of the world of sense and sight. It has its genesis, as we have seen, in the feeling of the fleeting, unsubstantial character of the world and the things of the world, and in the demand which arises in the mind for a real and abiding object of trust. It is the attitude of a mind that has penetrated beneath the surface shows of things, detected the illusion of the senses, and to which the outward world has become as unreal as the stuff that dreams are made of, as the vapor that appeareth for a little and then vanisheth away. The formula which expresses it is not “the world is divine,” or “all things are God;” but “the world is nothing, and God is all in all”—or, as it is put in the comprehensive phrase in which the Indian philosophies sum up their doctrine of the universe, “*there is but One Being—no second.*”

Now, if we try to reduce to philosophic form this doctrine that God is the only being or reality in the universe, and that all else only seems to be and has no real existence, we shall perhaps find that it is simply the attempt which, at a certain stage of thought, the mind makes to give unity and coherence to its ideas by the aid of the logical notion or category of Substance. When we speak of the continuous existence of any individual object—a plant, an animal, a human being—which has many different aspects or qualities, or which

is undergoing perpetual phenomenal changes, what is it that we think of as constituting its permanent reality? This flower or tree has a real existence, it is one individual thing, though the qualities of form, color, fragrance, etc., by which I perceive it, are many and various. It was the same plant yesterday as to-day, as it will be to-morrow and all its life long, though outwardly the matter that composes it, and the appearances it assumes, are never two days or hours precisely the same. When I say, *it* exists, *it* is one individual thing, *it* is the same plant which I saw a month ago, what is the "*it*" of which we speak? Not, certainly, what the senses perceive, for that is not one and the same, but many and various; not the outward material form, for that is perpetually changing, is not the same "*it*" for two days, hours—nay, for two successive moments of time. And the answer to which, at an early stage, thought, groping after the solution of the problem of the one in many, betakes itself, is that beneath and behind all the various and ever-changing qualities, forms, aspects of the plant, there is an unknown, invisible *substance*—a something which remains constant amidst all varieties, changes, vanishing appearances, and which entitles us to call the thing one and the same. Now this is precisely the conception in which Brahmanic thought seemed to itself to have found the key to the riddle of the universe. What our supposed observer does when he looks on the changeful appearances of the plant, and says, "Beneath all these there is an invisible substance that is ever one and the same," the Indian thinker did when, in the contemplation of the endlessly diversified, ever-shifting forms and aspects of the world to the eye of sense, he said, "These are but the surface appearances, the unsubstantial transitory accidents; beneath them all there is one, and only one, reality—one Being that is and never changes—one permanent substance of all things,—and that is Brahma. I can-

not tell *what* Brahma is; I can **only** say *that* he is. He who would know Brahma must turn away from all that the senses perceive, and think only of an existence that is like pure, void space, without division or distinction, quality or dimension." These ancient thinkers, indeed, did not formally reason after the manner of the modern metaphysician. They were at the stage when thought can only reason in metaphors, and even in their so called philosophical systems their deepest reflections are embodied in sensuous figures and images. But when they represent the supreme God as declaring, "I am the light in the sun and moon; I am the brilliancy in flame, the radiance in all shining things, the light in all lights, the sound in air, the fragrance in earth, the eternal seed of all things that exist, the life in all; I am the goodness of the good; I am the beginning, middle, end, the eternal in time, the birth and death of all,"—when they represent the visible material world, and the life and actions of man, as the illusory phantoms and appearances which a conjuror or magician calls up and the gaping crowd mistake for realities, or as the personages, scenes, events of a troubled dream,—when they say that "our life is as a drop that trembles on the lotus-leaf, fleeting and quickly gone," and that such, so evanescent and unsubstantial, are the things that seem to us most real, "the eight great mountains, and the seven seas, the sun, the very gods who are said to rule over them, thou too, and I, the whole universe which all-conquering time shall dispel;"—in these and many other modes of expression, Indian thought is only ringing the changes on the one fundamental doctrine of its creed, that God is the substance of all things, the only Being who really is—and that the independent reality we ascribe to other beings is due only to illusion.

And now let us ask, What practical results follow from such a doctrine? what is the moral and religious life which it tends to produce, and which,

In the historical development of Brahmanism, it actually did produce? At first sight the logical outcome of a pantheistic creed would seem to be purely negative. It appears naturally to lead to an ascetic morality, and a religion whose highest aim is union with the Deity by abstraction from the world. The finite world being nothing but illusion and deception, the only way in which we can rise above the illusion, emancipate ourselves from the dominion of vanity and falsehood, is by withdrawal from the world and all finite objects and interests, by stifling all natural desires and affections; and, on the other hand, God being conceived of simply as abstract substance, the unknown reality behind the finite, beyond all we can see and think and name, union with Him is possible only in one way—by the cessation of all positive thought, even of all personal consciousness, and by identifying ourselves in a kind of ecstatic vacuity of mind, with that emptiness in which the divine fulness is supposed to dwell. And this, as we shall see in the next lecture, was one direction in which the religious and moral life of India did actually develop itself. But there is another line which, especially in what may be called the popular exoteric religion and morality, it took, and which might seem to be altogether inconsistent with its pantheistic basis. At first view, it is difficult to see anything but contradiction between pantheism and polytheism, between the doctrine that God is the only one reality, and the monstrous mythology, the complicated system of polytheistic doctrines and observances, which in India grew up side by side with it. If the finite world be nothing but illusion and vanity, and God the Being who altogether transcends it, how shall we account for a religious system which consists of the arbitrary deification of all sorts of objects in the finite world—the heavenly orbs, the material elements, plants, animals, mountains, rivers, the Indus, the Ganges, the

lotus-flower—how shall we explain the unbridled license of a sensuous idolatry, which not content with actual existences, invents as objects of reverence a thousand monstrosities, incongruous combinations, offensive shapes and symbols? And again, if asceticism, a life of abstraction from the world and the gratification of sense, be the logical result of a pantheistic creed, how could such a creed lead, as it actually did, to a social life in which the grossest sensual excesses are not only permitted but perpetrated under the sanction of religion?

The answer is, that a pantheistic idea of God, if in one point of view it is opposed to idolatry and immorality, in another point of view may be said logically to lead to them. The unity which pantheism ascribes to God is not a unity which is hostile to polytheism. A belief in the unity of God as we understand that doctrine, is indeed incompatible with a belief in the multiplicity of gods. A man cannot be a worshipper of the one living and true God, and at the same time a worshipper of the gods many and lords many of paganism. But that is simply because in Christianity the unity of God is *not* a pantheistic unity. In pantheism, God, conceived of as the substance of the world, if He lies behind all finite beings and objects, stands at least in precisely the same relation to all. As the substance of a plant is as much in the unsightly root or the rugged stem as in the flower and fruit, so a Being who is thought of as the substance of all finite things, is equally related to all—to things mean as to things lofty, to gross matter as to intelligent thinking spirit, to the vilest and impurest as to the noblest and most exalted natures, and their functions and actions. But in Christianity it is different. It is true that, to Christian thought also, the world is full of Deity. Christianity sees God in all things; and there is no object, however insignificant, no evanescent aspect of nature, no meanest weed or wayside flower, no passing wind or falling shower, which is not

the revelation of a divine presence and instinct with a divine significance. Nay, to Christianity we owe that deeper insight which can discern a soul of goodness even in things evil, a divine purpose and plan beneath the discord of human passions and the strife and sin of the world. But the Christian deification of the world is not a deification of it, so to speak, in the rough—an apotheosis of all things and beings alike and without distinction. The God it sees in all things is a God of thought, of wisdom, order, goodness—a God who is Spirit or Mind; and therefore it can see Him in all things without seeing Him in all things alike. It can see more of God, a richer revelation of the infinite mind, in organization and life than in brute matter, in human thought and affection than in animal instinct and appetite, in a spirit surrendered to exalted and unselfish ends than in one that is the slave of its own impulses and passions. And if, even in what we call evil, in pain, and sorrow, and sin, there is a sense in which God's presence is revealed, it is not in these things as seen only in their outward, isolated aspect, but contemplated from a universal point of view, as the discords that contribute to, and vanish away in, the eternal harmony.

On the other hand, a religion which regards God as the unknown incomprehensible substance of the finite can take no account of distinctions in the finite. If to it, in one point of view, the objects of the finite world are nothing, in another they are all alike consecrated by the presence of God. And whilst the philosopher or Brahmanic sage might attempt, by a process of abstraction, by the silencing or abnegation of all definite thought and feeling, to grasp that indeterminate essence behind the world which he takes for God, the popular mind, which can never reach or rest in abstractions, would, by an irresistible necessity, take the other direction, and instead of deifying nothing, would deify everything indiscriminately. It would fasten, in other

words, on that side of its religious belief according to which no one thing or being is nearer to God, no one more remote from Him than another. He is the Being or Substance who manifests Himself alike in the mean and the great, the vile, obscene, and deformed, and the noble and beautiful and pure. Reptiles, beasts of prey, even the lowest forms of organic life, can be made objects of religious reverence as much as the human form divine; nay, there would be a kind of paradoxical logic, a legitimate capriciousness, in the preference of things monstrous and vile as the symbols of Deity: for the very arbitrariness of the selection would prove that it was not the particular qualities of the things themselves, but the one universal essence common to them all, which was the real object of worship—the light that shone through all, unaffected by the meanness, uncontaminated by the foulness, of the medium that conveyed it. It is this view of the subject that accounts for that indiscriminate consecration of the finite world in the immediate multiplicity of its existences and forms of being, which is the characteristic of the popular Hindu mythology.

And it is this view which accounts also for its defective morality. The hidden logic of pantheism leads not merely to an *ascetic* morality, but also, and by an equally natural sequence, to a *fatalistic* morality—a morality which tolerates or sanctions the vice that spring from the natural desires. For moral distinctions disappear in a religion which conceives of God as no nearer to the pure heart than to that which is the haunt of selfish and sensual lusts. The lowest appetites and the loftiest moral aspirations, the grossest impurities and the most heroic virtues, are alike consecrated by the presence of God. Nay, there is a sense in which the baser side of man's nature receives here a readier consecration than the higher. For while all true morality implies a struggle with nature, an ideal aim which forbids acquiescence

in that which by nature we are, it is of the very essence of a Pantheistic religion to discountenance any such struggle, and to foster a fatalistic contentment with things as they are. In a religion which finds God in all things—in which whatever is, simply because it is, is right—all natural passions, simply as natural, carry with them their own sanction. In yielding to nature, we are yielding to God. Immersion in the natural is absorption in the Divine.

And it is on the same principle, finally, that we account for the immoral character and results of that which forms so important an element of Indian social life—the system of Caste. For that system is simply the fixation and hardening of social inequalities and arbitrary distinctions by a fatalistic religion. Such a religion tends to confer the sacredness of divine right on the accomplished fact, however unjust and inhuman. When it began to dominate the popular mind in India, it found society divided by certain class distinctions, the origin of which it is not difficult to trace. The Aryan conquerors were divided by difference of blood and by pride of race—the contempt of the superior breed for one inferior in physical and intellectual endowments—from the conquered aborigines. The former, again, were divided among themselves by various class distinctions, such as those which in modern society spring up between the aristocratic, the middle, and the lower ranks, or between the professional and the trading or working classes. Thus the warrior or fighting class was distinguished as the more noble from the agricultural and industrial class, whilst both alike were divided by a wider gulf from those who belonged to the inferior or conquered race. Finally amongst a people such as the Hindus, of a devout and credulous temperament, it was natural that the priesthood should form themselves into a separate sacred order, with special privileges and prerogatives, and by playing on their

superstitious fears and hopes, should secure for themselves an acknowledged supremacy over all the other classes. Now, on a society so constituted it is easy to see how a pantheistic creed would operate. A religion which finds God in all things and beings alike, might at first sight be expected to be an equalizing religion; its tendency would seem to be to break down artificial barriers, and so often class divisions and antipathies. But on the other hand, seeing that, in such a religion, that which is, by the very fact that it is, is divine, it has a tendency to consecrate existing facts, to harden accidental differences and inequalities into permanent and inviolable divisions, and to extend over the whole organization of society the iron yoke of caste. In Brahmanism the latter proved the far more potent tendency; and as it is one, the pernicious influence of which on the moral and social life of India is to be discerned in its whole subsequent history, I shall devote the remainder of this lecture to a brief examination of the institution of Caste, and of the injurious influences with which it is fraught.

In the organization of society, distinctions of classes and individuals are as inevitable and as necessary to its welfare as is the differentiation of members and functions in the physical organization. Socialistic theorists, starting from the notion of abstract equity, have often advocated an impossible equality of civil conditions and occupations; but every attempt to realize such theories fights against nature. The essential distinctions of individual talents, tastes, tendencies, attainments, never fail to assert themselves; and though arbitrary force or mistaken enthusiasm may for the moment suppress them, it can only be at the expense of social progress, and with the ultimate result of the fresh outbreak of those inherent diversities which all spiritual life involves.

But if nature is at war with stereotyped sameness, it is equally at war

with stereotyped distinctions; and any attempt to maintain such distinctions must prove not less fatal to the true welfare and progress of society. Now the Indian system of caste is simply a vast and prolonged attempt to substitute artificial for natural distinctions, to create and perpetuate hard and fast lines of separation between the various orders of society, and the occupations, privileges, dignities, pertaining to them. It caught society at the point where, as above said, historical causes had led to certain social divisions of rank and occupation, and it petrified these divisions for all coming time. Thenceforth the place and vocation of each individual, the position above which he could not rise, below which he could not fall, were determined by birth. The son of the Brahman was born to all the honor and sacredness of the Brahmanical caste, and that sacredness became indelible; the vocations of war and government, and again of agriculture and industry, were in like manner irrevocably determined by the accident of birth; and finally, he whose hereditary position was that of the servile class, was bound to it for life by a destiny which quelled aspiration and made social ambition impossible.

Now, if we look for a moment to the results, social, moral, religious, with which such a system is fraught, it will be obvious that, had it not appealed to a principle deep rooted in the spirit and genius of the people—to an authority sufficient to quell the sense of the intolerable evils inseparable from it—no human ingenuity could have originated, or force of custom prolonged its existence. The social objections to such an institution as caste scarcely need formal statement. The welfare of society depends in a great measure on the free action of that natural selection by which the place and work of its individual members are determined. Whatever influence we allow for hereditary and transmitted tendencies, wrong is done both to society

and to the individual when room is not left for the free play and development of natural capacity and genius, and when men are not allowed to find their level according to their powers and attainments and the use they make of them. But here we have an organization which is altogether defiant of natural distinctions, and in which all manifestations of special ability and tendency are checked and suppressed from the beginning. The healthy stimulus which arises from the possibility of rising and falling is withdrawn, and an artificial protection against failure or disgrace is interposed. The evil influence of the system is perhaps more observable in the case of the Brahmanical than of any of the other classes. The position and privileges of the Brahman class are rigidly determined, and indeed constitute, as has been said, the hinge on which the whole system turns. In the Laws of Manu, perhaps the oldest of post-Vedic Sanskrit works, elaborate rules are laid down for the maintenance of their arbitrary superiority. By birth and origin the Brahman is invested with an almost divine dignity; he is lord of all the other classes, and separated from them by an insuperable barrier. To him exclusively belongs the right to read, repeat, and expound the sacred books, and to perform sacrificial and other rites; and any interference with his sacred vocation is prohibited under the severest penalties. But from the very nature of the thing, a conventionally sacred class, a priestly order determined by artificial and not by natural selection, is a self-contradictory notion, and every attempt to create it must prove a failure. Descent or arbitrary consecration can no more assure us of a man being a true priest than of his being a poet or artist, a philosopher or a mathematician. The call of a man to be a poet or philosopher is that the light of genius or the power of insight and originative thought dwells within his soul, and it is obviously impossible to limit this voca-

tion to any hereditary line or by any arbitrary designation. And in like manner, the call or commission to speak or act in God's name is simply that the light of divine wisdom illumines his mind, and that love to God and man glows within his heart. To substitute for this inward and spiritual vocation that which comes by the accident of birth or by external designation, is to rob the world of its true priests, and to transfer to official and spurious sanctity the reverence and submission due to wisdom and goodness.

But it is with the moral and spiritual results of the system of caste that we are here especially concerned; and in this point of view the unwholesome influence of such a system may be traced in various directions. For one thing, caste and ceremonialism are closely connected. A sanctity based on the accident of birth is not only unspiritual in itself, but it naturally tends to the substitution of a ceremonial for a spiritual worship. Where the agency by which spiritual effects are supposed to be produced is arbitrarily determined, there is no reason why the means employed by that agency should not be arbitrary too; and in the case of a religious caste who cannot appeal to any spiritual pre-eminence as the ground of their authority, there is the strongest temptation to prop up that authority by sacerdotal and other devices. Suppose it were the prevalent belief that bodily diseases could be cured, not by men endowed with superior medical knowledge and skill, but by a hereditary race or order of doctors; inasmuch as there is here no rational connection between the endowments of the agents and the cures ascribed to them, so neither need there be any rational connection between these cures and the remedies employed to effect them. Charms, spells, incantations, would, in the supposed case, be as likely means for the restoration of diseased organisms as the most careful scientific treatment; and there would be every temptation

on the part of the pretended order or succession of doctors to make this magic apparatus as imposing and elaborate as possible. In like manner a priestly caste, whose authority depends, not on superior wisdom and piety, but on hereditary or other purely arbitrary ground, almost inevitably has recourse to a religion of outward rites and observances. The arbitrary commission of the agents leads to an equally arbitrary character in the means employed by them. As their elevation to the privileged order, and the respect and reverence they demand from the community, have no relation to any special enlightenment or saintliness of character, it is neither necessary nor possible that their influence over others should be the natural influence of spiritual insight and persuasive power over the minds and hearts they instruct and inspire. Destitute of such salutary means of influence, they inevitably have recourse to the illegitimate and unwholesome influence of magical observances, imposing sensuous rites, and the ascription of mysterious virtues to arbitrary signs and ceremonies. Thus in India, as elsewhere, we find an elaborate and debasing ceremonialism taking the place of a spiritual religion, and the whole relation of man to God degenerating among the mass of the people into superstition and unreality. The rise of the Brahmanical authority coincides with the development of a complicated system of ceremonial rites. The simple ritual of the Vedic period—its natural childlike devotion, its prayers and hymns, its offerings of food and libations of water, and of the juice of the Soma-plant—was gradually overlaid by an elaborate sacrificial worship conducted by the Brahmans according to minute arbitrary rules. "The number of sacrificers and sacrifices of all kinds," we are told, gradually increased in India "in the post-Vedic period: and the greater the number of the sacrifices, and the more elaborate the ritual, the greater

occur the need for a complete organization of priests."—Monier Williams' 'Hinduism,' p. 41.)

But the most baneful result of such an institution as that of caste is, that it turns religion, which is the deepest and most comprehensive principle of union between man and man, into a principle of division and discordancy. If the divisions and inequalities which it stereotyped had pertained merely to the outward life, the cruelties and wrongs to which it gave rise would at least have admitted of one all-important mitigation. The inflated pride of Brahmins, the helplessness of the pariah, the fatalistic indifference of all classes alike would have been modified by the fact that there was a limit beyond which social inequalities could never penetrate. States of society there have been, such as medieval feudalism, as has been remarked, so far analogous to caste, that in them the social position and calling of individuals were practically determined by birth, and escape from a lowly or degrading occupation or station in life was almost impossible. But in these cases religion has formed the supreme corrective of social inequalities. In the instance just specified there was, indeed, an order or caste of ecclesiastics separated from the laity, but the separation was not absolute. Even as respects outward rank and dignity, religion constituted a principle of equalization, inasmuch as admission to holy orders was possible to all, and the highest dignities of the spiritual order were attainable by the son of the peasant alike with the son of the peer. But the power of religion to modify outward inequalities goes far deeper than this. The idea of the moral dignity of man—the idea that to each human being, as possessor of a spiritual nature, there belongs an inviolable freedom with which no other may tamper, that each has a spiritual life to live, involving rights and duties with which no earthly power can interfere,—this idea, which has received in Christianity its highest expression,

is obviously one which opposes an insuperable obstacle to the ingression of class distinctions and inequalities into the sphere of religion. It becomes in the minds that are penetrated by it a principle which preserves self-respect under the most degrading outward conditions, and arrests the tendency to fatalistic apathy under the most cruel social injustice and wrong. Moreover, by making union with God and participation in a divine nature possible to all, Christianity raises the meanest human being to an elevation which dwarfs all earthly greatness, stamps insignificance on all finite distinctions, and opens up to us a destiny in the contemplation of which the dignities and degradations of time alike disappear. Finally, in Christianity, religion becomes the solvent of class distinctions by its doctrine of the organic unity of the Church or household of faith. The ideal which it sets before us is that of a common or corporate life in which individual or class exclusiveness vanishes—a community in which the loftiest cannot say to the lowliest, I have no need of thee—from which pride and envy, scorn and hatred, all forms of human selfishness are eliminated, and wherein the life and happiness of the whole becomes dearer to each individual than his own. To crown all, Christianity finds the highest finite manifestation of God in the person of one who was neither sacred nor great by birth or caste, who linked infinite greatness to the lowest earthly humiliation,—the Son of God and the carpenter's son, the incarnation of Deity and the companion of the pariah and the outcast, the friend of publicans and sinners.

But, as we have seen, Brahmanism, by its institution of caste, is a religious system in all respects the opposite of this. In it arbitrary distinctions enter into the inmost sphere of the religious life, and, instead of being modified or annulled by religion, constitute its very essence. Instead of breaking down artificial barriers,

waging war with false separations, softening divisions and undermining class hatreds and antipathies, religion becomes itself the very consecration of them. The Brahman is by birth nearer to God than other men, standing in a special relation to Him which is independent of character and moral worth, and to which no other mortal can aspire. No other can be his brethren. There are those among them whose very touch is contamination. To associate with them, eat with them, help them in danger, visit them in sickness, come even into accidental contact with them, is to him a pollution to be atoned for by the severest penalties. Nay, there are those whom it is no sin but a duty to treat with contempt and inhumanity, who are doomed by birth to a lot of infamy and isolation from their fellow-men, and worse than all, on whom religion inflicts a wrong more cruel than slavery by making them slaves who regard their fate as no wrong. Instead of teaching them to look on their dark and hopeless lot as a thing for which they can seek higher consolation, an injustice against which it is right to struggle, religion only gathers over it a more terrible darkness by making that lot itself an unchangeable ordinance of God.

In these and other ways, we can perceive how the system of caste involves the worst of all wrongs to humanity—that of hallowing evil by the authority and sanction of religion. We cannot wonder, therefore, to find a reaction gradually arising in the consciousness of the people against a religion which so outraged the deepest instincts of man's spiritual nature. How that reaction found expression under the guidance of a great religious reformer, what were the particular forms it took and the results to which it led, it will be our endeavor in the next lecture to show.

RELIGIONS OF INDIA.

II. BUDDHISM.

Buddhism is, in one point of view, a reaction against Brahmanism; but in another and deeper point of view, it is a new step in that progressive movement of religious thought which we have endeavored to trace in the religions of India. In the former aspect, it is simply the recoil of the aggrieved moral instincts from the immoral and anti-social results of the earlier religion, and a protest against its idolatrous rites and observances. Neither in its religious nor in its moral teaching was Brahmanism true to its fundamental principle. Pantheism, as we have seen, may, viewed from opposite sides, be regarded either as a religion in which everything vanishes in God, or as a religion in which everything is consecrated by the presence of God. But though both forms of religion start from a common pantheistic origin, only one of them may be said to be strictly and logically true to it. Brahmanism may be described as the false or illegitimate consecration of the finite; Buddhism as the recall of the religious consciousness to that elevation above the finite from which, in its indiscriminate deification of material and sensuous things, the former religion had fallen away. When you have begun by saying that the world and the things of the world are unreal and illusory and that, in the whole compass of being, God is the only reality, you cannot legitimately return to rehabilitate that world which you have already denied and renounced. So far from pantheism lending its sanction to the deification of human and animal forms, or of every material object on which the superstitious imagination may fasten, its teaching would seem to be, that only by abstraction from the finite, by the mental annulling of the forms and phenomena of a world which is nothing but illusion, can we get near to God. So far, again, from finding in pantheism the basis of a morality

which consecrates existing facts, and practically asserts that whatever is, is right—it would be nearer the truth to say that its ethical result is, logically, that whatever is, is wrong; and that only by emancipating ourselves from the thralldom of custom, by the obliteration of illusory social distinctions and inequalities, can we rise into union with the Divine. It would seem, therefore, from this point of view, that Buddhism must be regarded as a reaction against Brahmanism, —a return to a religion of abstraction and a morality of renunciation which are the legitimate outcome of a pantheistic conception of God.

Yet though, no doubt, there is some truth in this view of the matter, Buddhism cannot be regarded simply as the return of Brahmanism to its fundamental principles. Like other religious reforms, it is at once a return and an advance. It reproduces in their simplicity and purity the ideas of the past, but, it reproduces them with a deeper meaning which history and experience have infused into them. It reasserts the negative element involved in pantheism, and, as we shall see, exaggerates it till not only every finite and anthropomorphic ingredient, but every vestige of positive thought, vanishes from the idea of God, and we seem to be left in the absolute negation of atheism. But when we have examined the history and results of this singular religious revolution, we shall perhaps be able to discern in it something more than negation; we shall find that the emptiness to which it seems to lead is one in which a richer fullness begins to dwell, and that, at once in what it denies and in what it asserts, it constitutes a necessary step in that process of development which is to be traced in the religious history of the world.

At first sight no event in the religious history of mankind seems more unaccountable than the rapid, widely extended, and enduring success of the religion which owes its origin to Buddha. Promulgated at first by a

solitary teacher in a country in which Brahmanism had for more than a thousand years dominated the thoughts and lives of men, it succeeded in a short time in overthrowing the ancient faith and in transforming the social life of India; and in less than two hundred years from the death of its founder, Buddhism became recognized as what, in modern phraseology, would be called the State religion. But more than that—inspired by a proselytizing enthusiasm unparalled in any other heathen religion, its missionaries went forth spreading its doctrines far beyond the country of its birth, amongst Asiatic races both savage and civilized. It penetrated, in the south, to Ceylon, which became, and has continued to our own day, the stronghold of Buddhism; in the north and east, to Kashmir, to the Himalayan countries, to Tibet, to the Chinese empire (where, early in the Christian era, it could claim an equal place with the religions of Confucius and Lao-tse as one of the three State religions); and finally, to the shores of the Japanese islands. In India, indeed, though for many centuries it constituted the prevailing religion, Buddhism gave way at length to a revised and modified Brahmanism; but its successes in other lands more than compensated for its extrusion from its original home. Its conquests have been greater, more extended and more lasting than those of any other religion, Christianity not excepted; and even now, well-nigh twenty-four centuries from the birth of its founder, Buddhism is, nominally at least, the religion of five hundred millions of the human race. It is thus a religion which not only carries us back through the ages to a period earlier than the origin of almost all other existing faiths, but which is still strong with the vitality of youth, and constitutes at this very moment the sole source of spiritual faith and hope to a population larger than the whole population of Europe, and more than half that of Asia.

Yet if we inquire into the nature

of the religion which has achieved a success so marvelous, the answer seems to be, that it is a religion destitute of every idea that has lent, or that can be conceived to lend, to any system of belief its power over the human spirit. It is a religion which seems to deny the very being of God, and which refuses to man the hope of immortality. It teaches, as one of its cardinal doctrines, that existence is wretchedness, and the love of it a feeling to be suppressed and exterminated—that the highest happiness attainable on earth is in the extinction of all natural desires and affections, and the only heaven beyond it utter and final annihilation. Than such a creed as this none could well be conceived more cheerless and unattractive, more destitute of either real or spurious conditions of success. Pessimism may sometimes have an attraction for exceptive minds, or, when presented in a philosophic form, may, like any other thesis on which speculative genius wastes its subtlety, achieve, as recent experience proves, a temporary popularity. But the limited success of the modern philosophy of despair affords obviously no parallel to the wide and enduring prevalence of Buddhism. The success of false religions, again, has sometimes been traced to the adaptation of their doctrines to the passions and prejudices of men—to the proffer of worldly triumph and glory, or the promises of future bliss, which they presented to their votaries. But to no such appeal to human selfishness can the prevalence of Buddhism be ascribed. Instead of adapting itself to the spirit of the age and the prejudices of society, it seemed purposely contrived to revolt the class antipathies and jealousies which had rooted themselves for ages in the Hindu mind, and to arouse the hostility at once of the civil and ecclesiastical powers whose authority it assailed, and of the people to whom that authority had become nothing less than sacred. Instead of pandering to the selfish instincts by the proffer of

a cheap relief from the stings of conscience, of temporal advantages, or of a futurity of sensual bliss, it demanded, as the condition of salvation, the renunciation of the only pleasures which most men care for; and as the reward of austere self-mortification it held forth the prospect—to the majority, of a long series of future penitential existences in human and other forms; to the few, of immediate entrance on that Nirvana, which is the Buddhist climax of blessedness, and which means the complete and final extinction of conscious being.

To what, then, in the absence of the ordinary causes of success, are we to ascribe the rapid and permanent triumphs of Buddhism? What was there in a religion which appealed neither to what is lofty nor to what is base, neither to the deeper spiritual instincts nor to the lower selfish impulses of the human heart, that could secure for it a success which not even the most notable religions that have tried either way—which neither Christianity nor Mohammedanism—have attained?

I shall endeavor to answer this question by submitting to you a sketch of the leading doctrines of Buddhism in their relation to the development of religious thought. It is impossible, however, to understand the origin and the characteristic ideas of Buddhism without some reference to the life and character of its founder. Nor can it be doubted that amongst the causes to which, at any rate, its early successes were due, not the least was the singular personality and career of Buddha. As to these, our means of information are, it must be acknowledged, by no means either abundant or very authentic. The canonical Buddhist works from which our knowledge is derived belong to a period at least 200 years after the events to which they relate; and though those of the northern Buddhists contain an elaborate biography of Buddha under the title "Lalitavistara," yet in this work so large an element of the marvellous

and legendary has been interwoven with the story, that it is difficult to disentangle from it what may have been the original element of fact. It would be a waste of time, especially within the limited compass of a single lecture, to repeat the narrative which passes with various modern writers for the life of Buddha; but some of its leading incidents are corroborated by the somewhat earlier books of the southern Buddhists, and in its general tenor it represents an ideal too exalted to have been the mere invention of the age and country from which it sprang. It is at any rate an ideal which profoundly impressed itself on the Indian mind at a very early age, and which has entered a deep and lasting influence on the religious history of mankind.

I. Omitting details, then, which are probably the mere embellishments of popular tradition, the outline of the story is somewhat as follows. In the course of the sixth century B. C., Gautama (who afterwards came to be known by the designation "Buddha," the enlightened), the son of a rajah or chief of the Sakyas, an Aryan tribe of central India, abandoned in early life his position and prospects as heir to his father's throne, and passed the rest of his life as a wandering religious mendicant. Various incidents related with dramatic detail are said to have led to this act of renunciation. But if we reflect on the influence which the conditions of time—an age of gross and degrading superstition, and of intense social corruption—would exert on a mind of great intellectual originality, and of deep moral and religious susceptibilities, the step is one not difficult to account for. Buddha seems to have been one of those natures, reflective, introverted, restless, for which the problems of the spiritual life have an importance transcending all outward interests, and which are impelled to seek the solution of these problems by an imperious inward necessity. In whatever form the object of spiritual inquiry presents itself—

whether as the search for truth, or for the meaning and end of human life, or for the explanation of its moral contradictions and anomalies, or for salvation from sin and sorrow and death—for such natures there is no rest till the inward perplexity and anxiety are removed. Passive acceptance of circumstances is for them impossible; and if the outward conditions of life seem to conflict with the profounder needs of the spirit, we can understand how such minds, jealous of their influence, in some access of spiritual anxiety and impatience, may at one stroke shake off the bondage of outward position, and set themselves free from what they deem the great task of life—the work of spiritual thought and inquiry.

The subsequent career of Buddha is in keeping with the view I have now suggested. It is the history of a soul in search of spiritual rest, of the various experiments by which he vainly sought to find it, of the success which at last crowned his efforts, and, finally, of his life-long endeavor to communicate to others the blessing he seemed to himself to have attained. Of his abortive endeavors, two are specially recorded—the search after spiritual satisfaction, first, by philosophic thought, and secondly, by ascetic austerities. He had recourse, in the first place, to some of the most famous Brahmanical teachers of the time, enrolling himself amongst their disciples, and listening patiently to their expositions of the great questions of ontology and ethics. But though in the doctrines he subsequently taught we find traces of this sort of culture, and of his familiarity with the ideas of the so-called schools of Hindu philosophy, his studies, we are told, failed to bring him the mental peace he sought. His was not a nature which could find rest in speculative investigations or subtle dialectics. The relation of such inquiries to the exigencies of human life is too indirect to give them a permanent hold on a

mind the practical side of which was so strongly developed. His moral and religious sympathies were too intense, his interest in humanity and its struggles and sorrows, was too keen, to admit of his resting content with any satisfaction which abstract thought can bring. His next attempt to find what philosophy had failed to bestow, was by a discipline of bodily austerities. He retired, says the story, along with five faithful friends, to a wild and solitary spot in "the jungles of Uruvela," and there gave himself up to fasting and other bodily mortifications of the most rigid kind. This discipline the youthful ascetic continued with unflagging courage for a period of six years. But perhaps it is one among the many proofs of that strength and balance of character which, through the dim light of tradition, we can discern in this great religious reformer, that the mystic visions and hysteric ecstasies which ascetics have often mistaken for supernatural revelations, found no access to his mind, and that at last he became convinced that in seeking spiritual peace by any outward regimen he was a second time on the wrong track. Giving up, then, his vigils and penances, and forsaken by his companions, to whose superficial natures this change seemed a grievous relapse, he betook himself thenceforth, it is said, simply to meditation and prayer. Translated into modern language, the attitude of his mind at this point may be said to be that of one who has renounced this idea of salvation by works, by meritorious self-denials and outward observances. Was there, then, no other pathway to peace? The answer came when he least looked for it. Wandering, says the story, from place to place, and ministered to by some humble women who had been touched by his piety and gentleness—still waiting, longing, aspiring after the secret of spiritual rest—at length, after a more than usually protracted period of meditation, while resting under a tree at a place which pious reverence named afterwards

"Bodhimanda," the seat of intelligence, a new light seemed to break upon his mind, his doubts and difficulties vanished, and the secret at once of his own spiritual freedom and of the world's regeneration was within his grasp. This is the great moment when, according to the belief of his disciples, he became entitled to the designation by which, for thousands of years, he has been known—that of "Buddha," the enlightened, the possessor of spiritual intelligence.

What the new doctrine was we shall see more fully in the sequel. If we said that this wondrous revelation, this idea so precious as to seem cheaply purchased by all the sacrifices and sorrows of past years, was no more than this—salvation, not by outward penances and sacrifices, but by inward renunciation and self-devotion,—the great discovery would sound to modern ears but a trite and commonplace ethical maxim. It is, however, in all lines of investigation, a false complacency which, in the pride of modern enlightenment, looks down on the discoveries of the past, and measures the value of advances in knowledge, not by the imperfect light which preceded them, and the struggles it cost to gain them, but by the wider knowledge which in our day is the possession of all. But even if Buddha's discovery meant no more than this, that salvation, happiness, blessedness—the good, call it what you will, which is the end or goal of human life—consists, not in outward condition, but in inward character, and is to be sought, not in a future heaven which is the arbitrary reward of piety, but, here or hereafter, in superiority to all selfish desires and passions, in the inward heaven of the spiritual mind,—even, I say, if this were all he taught, it is a doctrine not so universally accepted and acted on in our own day, two thousand years after the Indian teacher first proclaimed it, that we can afford to condemn it as trite or commonplace.

From this time forward, the life of

Buddha is that of the preacher or prophet of the new doctrine. Filled with a boundless compassion for the ignorance and wretchedness of his fellow men, and believing himself to be possessed of the only truth which could save them, he went forth with enthusiastic zeal on his mission of love. He proclaimed his doctrine first in Varanaci, the modern Benares, then in other cities and villages in the valley of the Ganges. Gradually the fame of the new teacher and his doctrine began to spread far and wide. His zeal, his rigid self-renunciation, combined with serene gentleness and benignity, his wisdom and eloquence, and even, it is said, his personal dignity and beauty, gave strange force to the stern doctrines he taught, and won men's hearts wherever he went. Crowds flocked to his teaching, and thousands of all ranks enrolled themselves among his adherents. The schools of the Brahmans began to be deserted; some of the most notable Brahmanical teachers became themselves his converts. The terrible bondage of caste became incapable of resisting the power of the newly awakened spirit of human brotherhood, and a moral reformation of the most undoubted character witnessed to the salutary influence of his teaching. In the fullness of his fame and influence he revisited, twelve years after he had left it in loneliness and uncertainty, his father's court; and soon, it is recorded, his father, his wife, his son, his foster-mother, and other members of his family were numbered among his disciples. It is impossible, however, to pronounce what credit is due to this and to many other incidents with which tradition has filled up the outline of the latter part of his career. He is said to have lived to the great age of fourscore years, and to have found for many years an asylum in the dominions of a rajah or prince who had become one of his earliest converts. The ruins of a spacious building, erected for him by the piety of this prince, were pointed out to a Chinese pilgrim in

the seventh century of our era; and the tradition still ran that here were delivered many of those discourses which are preserved as the words of their master in the sacred books of the Buddhists.

However difficult it may be to separate the historic from the legendary and fictitious element in the story of Buddha's life, if the foregoing narrative can be regarded as even an approximately accurate representation of the facts, something at least of the wonderful success of Buddhism must be ascribed to the personal character of its founder. It brings before us the picture of a very rare and lofty nature. We seem to see in him a mind not only deeply reflective, but of great practical sagacity and insight, capable of profound and comprehensive views of life, able to discern the hidden causes of the evils under which society labored, and to devise and apply the proper remedies. The impression, moreover, left on the mind by his whole career, is that of a man who combined with intellectual originality other and not less essential elements of greatness, such as magnanimity and moral elevation of nature, superiority to vulgar passions, an absorption of mind with larger objects, such as rendered him absolutely insensible to personal ambition; also self-reliance and strength of will—the confidence that comes from consciousness of power and resource—the quiet, patient, unflinching resolution which wavers not from its purpose in the face of dangers and difficulties that baffle or wear out men of meaner mould. Along with these, we must ascribe to him other qualities not always or often combined with them, such as sweetness, gentleness, quickness and width of sympathy. On the whole, whilst there is in the system of doctrine ascribed to him much which, to the modern mind, seems erroneous and repulsive, I do not think we shall err in conceiving of the character of Buddha as embracing that rare combination of qualities

which leads to certain exceptive personalities a strange power over all who come within the range of their influence, calls forth the love and devotion of human hearts, welds together under a common impulse the diversified activities of multitudes, and constitutes its possessors the chosen leaders of mankind.

II. Amongst what may be called the secondary causes of the success of Buddhism, an important place is undoubtedly due to the morality which was not only embodied in the life of Buddha, but constituted a great part, if not the main substance of his teaching. The tendency of the pre-existing religious system had been to dissociate morality from religion by transforming the latter either into a thing of speculation and school-learning, or into a thing of outward ceremonial. For the few who were capable of philosophic culture, spiritual perfection was identified with a kind of esoteric wisdom, attainable only by meditation and mental abstraction. For the great mass of the people, the moral and religious instincts were misdirected into the channel of an elaborate ceremonial—of prayers, penances, purifications, minute authoritative precepts and prohibitions applicable to almost every relation and action of daily life. Now it is the singular merit of Buddhism, whatever view we take of the ultimate end to which it pointed as constituting the salvation of man, that the way by which it taught men to reach that end was simply that of inward purification and moral goodness. Outside of Christianity, no religion which the world has ever seen has so sharply accentuated morality and duty as entering into the very essence of religion, or as inseparably connected with it. If it made knowledge a condition of salvation, it was not a knowledge of theological dogmas or esoteric mysteries, possible only to acute or speculative minds, but a knowledge of which morality is the indispensable presupposition, and which is to be attained by clearing the soul from the darkening influence of impulse and

passion. "The highest insight," is the declaration ascribed to Buddha, "is not that which can be measured by an intellectual standard; but it is of little use only to know that: what is of supreme importance is a change of the heart and spirit." If, again, the founder of Buddhism did not provoke the hostility of the priests or offend the prejudices of the multitude by declaring open war against the whole ceremonial system of Brahmanism, we find him constantly endeavoring to infuse into it a rational and moral meaning. "Anger," he says, "drunkenness, deception, envy—these constitute uncleanness; not the eating of flesh." "Neither abstinence, nor going naked, nor shaving the head, nor a rough garment; neither offerings to priests, nor sacrifices to the gods, . . . will cleanse a man not free from delusions,"—i. e., from the deluding influence of sensual pleasure, spiritual ignorance, and the selfish lust of life. In short, the large and important place which practical morality occupies in the Buddhist system, and the fact that, so far, it rests its claim, not on arbitrary dogmas and sacerdotal observances, but on an appeal to the conscience and the spiritual nature of man, constitutes one great secret of its strength.

It would undoubtedly protract this lecture to illustrate at any length what has now been said, by citations from the ethical part of the Buddhist sacred writings. In one of Buddha's discourses, he is said to have summed up his whole system in the following comprehensive formula: "To cease from all sin, to get virtue, to cleanse one's own heart—this is the doctrine of Buddha." Besides the severer rules laid down for those who entered on the technically religious life—that is, the life of the orders of religious mendicants—there is in the sacred books a systematic digest of duties, negative and positive, which Buddha is said to have inculcated on the laity. Amongst the former are included the five cardinal prohibitions—of murder, of theft, of unchastity, of lying, of

drunkenness. The positive virtues are summed up in "love of being"—i. e., benevolence to all living beings, a precept extending not only to all human beings, including the lowest castes and the vilest outcasts, but also to the lower animals. From the "Dhamma-pada," or Scripture verses, a collection common to both schools of Buddhists, the following extracts have been given by a recent writer (Rhys David's "Buddhism," p. 128 ff.): "Never in this world does hatred cease by hatred—hatred ceases by love; this is always nature." "One may conquer a thousand men in battle, but he who conquers himself is the greatest victor." "As the rain breaks in on an ill-thatched hut, so passion breaks in on the untrained mind." "Let no man think lightly of sin, saying in his heart, It cannot overtake me." "As long as sin bears no fruit, the fool thinks it honey; but when the sin ripens, then indeed he goes down in sorrow." "Let us live happily, not hating those who hate us." "Let a man overcome anger by kindness, evil by good, . . . the stingy by a gift, the liar by truth." "Let a man speak the truth; let him not yield to anger; let him give when asked, even from the little he has. By these three things he will enter the presence of the gods." "Not by birth, but by his actions alone, does one become low caste or a Brahman."*

* The following translation of a poem, embodying moral precepts ascribed to Buddha, is quoted by the above-named writer under the title "Buddhist Beatitudes":

A deva speaks—

"Many angels and men
Have held various things blessings,
When they were yearning for happiness,
Do thou declare to us the chief good."

Buddha answers—

"Not to serve the foolish,
But to serve the wise
To honor those worthy of honor;
This is the greatest blessing."

There is not a little in some of these sentences to remind us, in their spirit, and even in their form, of the lessons of a greater teacher. Yet much has been made of the apparent coincidences between the Buddhist and the Christian morality, it will appear, I think, on closer examination, that the similarity is in some respects only a superficial one. The main defect of the former—arising, as we shall see, out of the fundamental principle of Buddhism—is, that it is a morality of negation or renunciation. It lays almost exclusive emphasis on the passive virtues of submission, resignation, indifference to the allurements of sense and passion, deadness to the world and the things of the world; and if it seems to find any place for active benevolence and kindred virtues, it does so

"Much insight and education,
Self-control and pleasant speech,
And whatever word is well-spoken;
This is the greatest blessing.

To support father and mother,
To cherish wife and child,
To follow a peaceful calling;
This is the greatest blessing.

To bestow alms and live righteously,
To give help to kindred,
Deeds which cannot be blamed
This is the greatest blessing.

To abhor and cease from sin,
Abstinence from strong drink,
Not to be weary in well-doing;
This is the greatest blessing.

Reverence and lowliness,
Contentment and gratitude,
The hearing of the Law at due seasons;
This is the greatest blessing.

To be long-suffering and meek,
To associate with the tranquil,
Religious talk at due seasons;
This is the greatest blessing.

* * * * *

Beneath the stroke of life's changes
The mind that shaketh not,
Without grief or passion, and secure,
This is the greatest blessing.

On every side are invincible
They who do acts like these,
On every side they walk in safety,
And this is the greatest blessing."

only in name, or by a kind of noble inconsistency. Its precept of universal love is only to the ear identical with the virtue of Christian charity. The latter is essentially based on the idea of the value and dignity of man's spiritual nature as made in the Divine image and capable of an infinite destiny; but the universal love of the Buddhist has in it no element of respect for man as man, and can rise no higher than compassion towards a being whose very existence is vanity and illusion, and whose highest destiny is to pass away into nothingness. With all its imperfections, however, there can be no question that the comparatively pure and elevated morality which Buddha taught and exemplified is one of the causes to which we must ascribe the marvelous success he achieved in his own day, and the deep hold which his system has taken of the religious consciousness of the East through succeeding ages.

III. Yet moral teaching could never of itself have sufficed to create a religious revolution. A practical morality that is not based on universal principles—in other words, that has not its source in religious ideas—cannot take any deep or permanent hold of the spirit of man. Moreover, so far as we can learn, Buddha's was one of those deeply reflective natures in which the speculative instinct, the tendency to examine into the ultimate principles of things, is never wanting; and this tendency could not fail to be stimulated and developed by his long training in the schools of the Brahmans. We might naturally expect, therefore, to find in Buddhism something more and deeper than a system of practical ethics. And this is actually the case. Of the three "Pitaka" which constitute the canonical books of the Buddhists, and which, 170 years after the death of Buddha, are said to have received the sanction of his disciples as embodying the teaching of their master, one is devoted to the statement of doctrines and the exposition of metaphysical principles. Yet, when we proceed to examine in-

to their contents, the difficulty with which we started recurs. For the strange fact meets that we have here what purports to be a system of religious doctrines in which the very idea of God is left out; and though we find in it the doctrine of a future state of retribution, it is only under the fantastic form of the transmigration of the soul after death into the bodies of men and of the lower animals, and even into plants and inorganic substances. Though, again, there is in this singular creed a doctrine of final blessedness—or, in modern language, of "the salvation of the soul"—yet that in which this blessedness consists is what is termed "Nirvana," which, according to the generally accepted interpretation, means simply annihilation—absolute and final extinction of conscious being. How, it may well be asked, could the personal influence of any individuality, however noble, or the practical power of any system of morality, however pure and exalted, lend currency to a system of doctrines apparently so incredible and revolting? How was it possible for a religion that seems to be the negation of the very essence of religion—a religion without God, without immortality, without heaven—to gain a single sane convert, not to say to become the religion of more than one-third of the whole human race?

In order to answer this question, it will be necessary to examine a little more closely into the nature of the Buddhist doctrines, and the reasonings on which they were based. As, however, within our limits, a detailed examination of them is impossible, I shall, in what remains of this lecture, confine my remarks to an explanation and criticism of that doctrine of Nirvana, which may be said to constitute the key-note of the whole system. The word Nirvana is that which Buddha employs to denote the consummation of his own spiritual struggles and aspirations, and the blessedness in which he invited all men to share. It was in his eyes the highest reward of goodness—the state into

which only those who, it might be after ages of penitential discipline, were purified from all taint of evil, could be permitted to enter. What, then, precisely, in the view of Buddha, did Nirvana mean?

Now on this point there has been great discussion and division, turning mainly on the question whether Nirvana is an absolutely negative idea, or admits of any positive element such as in other religions enters into the conception of a future state; whether, in other words, it means simply annihilation, or only an escape from pain and sorrow—the cessation of existence, or merely the cessation of the evils of existence, and the transition into a state of perpetual rest and blessedness. In deciding between these two interpretations of the word, etymology does not help us: for, according to different authorities, it may be translated either “blowing out,” the act of extinguishing a light; or, “without blowing,” a state of calm which no breath of wind disturbs. Understood in the former sense, it would mean the complete extinction of being; in the latter, the passing away of the spirit into a region where the perturbations of life can follow it no more. By some Sanskrit scholars it is maintained that “two opposite sets of expression in the Buddhist texts, with reference to Nirvana, represent two phases of the doctrine—the one ancient, the other modern. The original doctrine taught by Buddha is that of the entrance of the soul into rest, while the dogma of annihilation is a perversion introduced by metaphysicians in later times. This theory has been shown by a recent investigator, Mr. Childers, author of a dictionary of Pali, the sacred language of the Cinghalese Buddhists, to be untenable; and he himself propounds the theory that “the word Nirvana is used to designate two different things—the state of blissful sanctification called *Arhatship*, and also the annihilation of existence in

which it ends.” “*Arhatship*,” he maintains, “cannot be the ultimate goal of the Buddhist, for Arhats die like other men. But Nirvana, whatever it is, is an eternal state in which *Arhatship* necessarily terminates; and, therefore, expressions properly applicable to the former, might, in a secondary sense, be used of the latter.” These various theories as to the meaning of Nirvana are not, it seem to me, incapable of reconciliation. The word may be employed to denote either the ultimate end to which the Buddhist aspires, or the means by which it is to be attained. In the second sense, it is unquestionably frequently applied in the Buddhist scriptures to the completion of that process of renunciation by which the aspirant after perfection seeks to kill out the love of life, and all those desires and impulses which make men cling to life. In this sense it is a state or attitude of the human spirit attainable during the present life. The Buddhist conceives it possible, by self-discipline, to extinguish in his breast not only all selfish desires and passions, but the very consciousness of self in which they centre. The four “*Sublime Verities*,” as they are called, which are represented as constituting the sum and substance of Buddha’s teaching, are these: (1.) Existence is only pain or sorrow; (2.) The cause of pain or sorrow is desire; (3.) In Nirvana all pain and sorrow cease; (4.) The way to attain Nirvana is by what is called the “*noble path*,” which means virtuous self-discipline, ending in ecstatic oblivion of self-consciousness. When this last point is reached, everything that constitutes our separate individuality—feeling, thought, the very consciousness of personal existence—is annihilated; the oil that fed the lamp of life is drained off, and the flame goes out of itself. It is true that the man who has reached this blank mental nothingness still exists, but all that is left of his personality is the mere bodily form. When death has dissolved that, there is nothing left to constitute the basis of a new

existence of trouble and sorrow, nothing to light up the lamp of life anew; and Nirvana, already virtually attained, reaches its actual consummation in death.

But whilst, in this point of view, it is possible to regard Nirvana as a state of perfection attainable in the present life, if we consider what it is in which that perfection consists, and the way in which it is supposed to be attained, I think we cannot hesitate to pronounce that this heaven of the Buddhist contains in it, at least explicitly, no positive element such as we express by the words "moral and spiritual perfection," but it is neither more nor less than absolute annihilation. This conclusion will, I think, be made still more obvious, if, without dwelling on particular passages in the Buddhist canon in which Nirvana is referred to, we trace briefly the process of deduction which led Buddha to regard it as the *summum bonum*, the goal, of all human aspiration and effort. His train of reasoning, if so we can term it, is in substance this: There is no possibility of escape from the vanity and wretchedness that embitter human existence but by escape from existence itself. If we examine into man's nature closely, we shall be forced to conclude that vanity and misery are not accidents of his being, but enter into the very constitution and essence of it, and therefore, that we can only cease to be wretched by ceasing to be. Take any of the elements of man's nature, and you will find it to be so. Our senses subject us all through life to the most miserable delusions. They fool us into belief in a world which has no reality. The things that please the eye and gratify the senses, are not as we seem to see them. The world is only a world of appearances that exist for the moment in us, and not in the things that have any permanent reality without us. In regarding them as real existences, we are only the fools of our own fancy. Our desires and affections, again, subject us to a still more deplorable deception. They are

not only directed to objects that have no real but only a phantasmal existence, but they perpetually cheat us with promises that are never fulfilled. The joys of sense soon sate us. The palled appetite turns with disgust from the object that proffered it only delight, and sensuous pleasure long pursued dries up the very capacity of enjoyment, and leaves in the soul a weariness and vacuity more intolerable than the sharpest positive pain. The raptures of love, honor, worldly distinction and success, the joy of gratified ambition, the pleasures of gain never are what in anticipation we fondly imagined them to be. A thousand drawbacks mar the sense of enjoyment; sickness and the fear of death poison it; possession soon deprives it of its zest. It is just the man who has tasted most deeply of life's joys, whose experience of life and its pleasures has been the wisest, who will be the readiest to acknowledge what a mockery it all is. It is true that he who does so discern the unsatisfactoriness of life's pleasures is not necessarily delivered from their fascination. Moralizing to-day on their hollowness, to-morrow he may be lured anew by the bait he despised. But this very fact only deepens the painful sense of unreality and deception. That we have seen through it, that we know it, and yet that open-eyed we let ourselves be deceived by it—this only adds to disappointment the shame of conscious weakness, the humiliation and remorse of self-detected folly. Nor is there anything inconsistent with this conviction of the vanity and misery of human life in the fact that the man who has thus learned to despise life should still dread to quit it—that there should be an instinctive clinging to life even in the heart that has ceased to hope for anything from it. But this, again, only serves to deepen the conviction of the ineradicable falsehood and deceptiveness of human existence, and to add to the conception of it a new touch of ridicule and absurdity.

It is something like this which

seems to have been the train of thought which led the deeply meditative spirit of Buddha to that conclusion which the word Nirvana expresses. Human life is only vanity, delusion, wretchedness. What is the remedy for all its ills, what the only salvation from a misery so inextricably intertwined with our whole conscious experience? Is it to be found in death? Does Buddha think of the grave as the place where the wicked cease from troubling and the weary are at rest, or anticipate the tone of modern sentimentalism which thinks of "our little life as rounded with a sleep," of death as the dreamless slumber in which "after life's fitful fever we sleep well?" The answer is—No, death is not Buddha's cure for life's ills: for the source of these he perceived to be an inward and spiritual one—in the mind, and not in the man's outward condition and circumstances; and death, though it may change the latter, leaves the former, the true root of evil, unextirpated. Though not in the Christian form of the doctrine, Buddha, as we have seen, taught a kind of future retribution. To the soul which reaches the close of life unemancipated from its desires and passions, death is only the transition into a new earthly existence, at once retributive and probationary; and that again, when it has run its course, if the cause at once of existence and its sorrows be yet uneradicated, is succeeded by another, and so on interminably. If, then, not even in death can we find it, is there no other way of escape, no other refuge from evil? Yes, Buddha answers, there is one and only one haven of rest from the storms of life, one way of salvation from all its ills. The disease is spiritual, and so, too, must be the cure. It is not life, but the desires that make us cling to life, in which the secret of our wretchedness lies. If these remain, no conceivable change of circumstances will avail us. Kill desire, extinguish feeling, quell every throb of emotion and passion within the breast, cease to care or

wish for happiness, let not one pulsation of selfish feeling remain to ruffle the moveless calm of the spirit, and then Nirvana will be yours. Even here on earth you will be numbered among the enlightened and the free. The shadows which men mistake for realities will no longer befool you. The degrading bonds that enslave them will bind you no more. All that constitute the fatal gift of individual existence will have vanished away. And death, when it comes, instead of being only the entrance on a new cycle of sorrows, will be but the final rush of darkness on a spirit that has for ever ceased to be.

Such, then, is the strange doctrine which forms the fundamental principle of the Buddhist faith. Yet, state it as you will, have we here any solution of the problem of the wide and last-ist success of Buddhism? Can we conceive any human being attracted to a religion which preaches annihilation as the supreme good, the highest blessedness in store for humanity? Exceptive cases there may be, in which minds unhinged by misfortune or distracted by remorse have found it possible to prefer death to life, non-existence to an existence which has become one prolonged agony. "Wherefore is light given to him that is in misery," are the plaintive words of one from whose life all joy had vanished—"wherefore is light given to him that is in misery, and life unto the bitter in soul; which long for death, but it cometh not; and dig for it more than for hid treasures; which rejoice exceedingly, and are glad, when they can find the grave?" And the same sentiment is expressed in the well-known words of a modern writer—

"Count o'er the joys thine hours have
seen,
Count o'er thy days from anguish free;
And know, whatever thou hast been,
'Tis something better—not to be."

The analogy, however, which these cases present to the Buddhist longing for Nirvana, is a very imperfect one.

That in a few rare, and exceptive cases, remorse, satiety, intolerable pain or shame, and the like motives, should overcome the love of life, helps but little to explain how millions of human beings should be attracted to a creed which makes annihilation the supreme good of man. Moreover, does there not seem to be a strange inconsistency between this doctrine and the moral teaching and unwearied personal philanthropy of its author?

Why try, by softening its hardships, to make life less intolerable or more sweet to those whose highest virtue is to cease to care for it? Or again, why be anxious for the moral culture of a nature not merely destined to speedy extinction, but whose highest hope and aspiration is to be extinguished? Why be at pains in adorning, purifying, and ennobling that which at the end of the process, and as the result of it, is to cease to exist?

The explanation of these difficulties is to be found, I think, in this—that here, as elsewhere, the real attraction of a doctrine or system of doctrines is in something deeper than its form, and that men believing ostensibly in Nirvana, really believed in the deeper truth which unconsciously they discerned beneath it. The long struggle of thought with the mystery of the world and human life, which we have traced in the Indian religions, seems to have issued only in the discovery that God is a negation, and blank annihilation the final destiny of man. But when we examine the genesis of the doctrine, we are led to the conclusion that the Nirvana of Buddhism is, at least implicitly, something more than the mere negation it seems to be, and that what gave it its real power was the positive element it virtually contained. The worship of a negation, it may be conceded, is an impossibility, and an atheistic religion a contradiction in terms. But Buddhism, though apparently, is not really, an atheistic system. It starts from the basis common, as we have seen, to all pantheistic religions—that of the unreality,

the evanescence, the unsubstantiality of the world and all finite things—and it presses this notion to a point of exaggeration at which it seems to pass into a deification of nothingness—an attitude of mind which it seems impossible to distinguish from absolute atheism. It sweeps away even that *caput mortuum* of a deity, the abstract substance in union with which Brahmanism found its heaven, and its only heaven is identification with the blank negation which is all the deity that is left to it. But those who thus identify Buddhism with atheism overlook two all-important considerations: first, that the negation of Buddhism could not exist without a virtual affirmation; and secondly, that all religion, and the Christian religion most of all, contains a negative element—or that negation is a necessary step in the process by which the human spirit rises in communion with God. As to the former of these points, it needs little reflection to see that that very recognition of the nothingness of the world and of all finite objects of desire, which in Buddhism reaches its climax, is a virtual appeal to a positive standard of reality by which we measure the world and pronounce this verdict upon it. He who avers that we are such stuff as dreams are made of, could not be conscious of that fact save by his knowledge of a real existence that is outside of the shadowy world of dreams; and even the slumberer who only dreams that he dreams, is not far from waking. Absolutely unconscious ignorance and error—the ignorance and error of a mind that is content with its aberrations and illusions because it does not know them to be such—imply no conception of anything better; but to perceive my thoughts to be vagaries, my notions and reasonings futilities—this implies that I have virtually got beyond them, that I have in my mind a criterion by which I appraise and detect them; and I am at least halfway to a truth which I can already unconsciously employ as a criterion of error. In like manner, a religious

whose cardinal doctrine is the negation of the finite, bears unconscious evidence to the fact that it has already transcended the finite. Before the mind that has become profoundly convinced that the things that are seen are temporal, there at least floats some vision of the things unseen and eternal; and if the vision be as yet shadowy and uncertain, that it can be as even unconsciously apprehended as an ideal is the silent prophecy of a future when it shall be grasped as a reality. Have we not here, therefore, a principle which enables us to discern in Buddhism something more than the impossible worship of a blank negation? In the fact that its negation was one which felt and knew itself *to be* a negation, in those strange dogmas which make its teaching seem but one long scornful wail over the vanity and misery of the world and human life, may we not read the longing for, and latent belief in, a higher truth, in the light of which it saw and rose above the negation? Was it not the eternal and divine, though it could only as yet be defined as the negative or contradiction of the transient and human, which gave their religion its secret hold over men's hearts? Whilst they seemed to themselves only to seek after escape from a world that was unreal and a life that was nothing but vanity, what they really though unconsciously sought after was participation in that infinite life which is and abideth forever.

Moreover, as I have said, though religion cannot be a merely negative thing, all religious thought and feeling contain in them a negative element. It is not the language of paradox which the Christian believer employs when he speaks of "dying in order to live;" of "losing his life in order to find it;" of "bearing about in the body the death of Christ, that the life also of Christ may be manifest in us;" of "becoming dead to the world, that we may live unto God." That self-surrender to God in which the essence of religion lies, involves, as a necessary element of it,

the abnegation of self, the renunciation of any life that belongs to me merely as this particular individuality—of any life apart from God. As it is the primary condition of the intellectual life that the thinker effaces himself, gives up all merely individual opinions, prejudices, preconceptions—all ideas that pertain to him merely as this particular self—and lets his mind become the pure medium of the universal life of truth and reason—so it is the essential characteristic of the spiritual life that the individual lives no longer to himself. The initial act by which he enters on that life implies the renouncing of every wish and desire, every movement of inclination and will, that belong to his own private, exclusive self, or that point merely to his own interests and pleasures; and its whole subsequent course may be described as the more and more complete extinction of the narrow, isolated life that centres in self, the nearer and nearer approach to that state in which every movement of our mind and every pulsation of our spiritual being shall be in absolute harmony with the infinite mind and will, and apart from the life of God we shall have no life we can call our own.

The error, therefore, of Buddhism is, not that in it religion contained a negative element, but that it stopped short there. In the Christian conception of self-renunciation, to live no longer to ourselves is, at the same time, to enter into an infinite life that is dearer to us than our own; it is a death to self which rises to live again in the universal life of love to God and charity to all mankind. Yet even in that strange, morbid suppression of all human desire and passion, that impossible extinction of every natural impulse, which Buddhism inculcated, we may discern the unconscious groping of the spirit of man after something higher. To be in love with annihilation, to kindle human hearts by the fascination of nothingness, is indeed an impossible aim. And if we are confronted by

the moral paradox of a religion of negation which drew to itself the faith and devotion of countless multitudes, we may be sure that the attraction was not in the negation it seemed to preach, but in the positive truth in which that negation finds its complement and its explanation. Its last word was of the triumph of death over all human hope and love; but there was here at least some dim anticipation of another and yet unspoken word which it was given only to a far-off age to hear—"When this corruptible shall have put on incorruption, and this mortal shall have put on immortality, then shall be brought to pass the saying that is written, Death is swallowed up in victory."

RELIGION OF CHINA.*

CONFUCIANISM.

THE subject which has been allotted to us in this course of lectures is that phase of Chinese worship which constitutes the state religion, in the special form which it assumed five centuries before the Christian era. It is well that our field has been thus narrowed, for the subject of Chinese worship is in itself a vast one, and its attractiveness to the speculative mind is by no means proportionate to its vastness. As we pass from the lofty aspirations of the Brahmin, and from the mystic earnestness of the Buddhist, into the religious atmosphere of China, we feel instinctively that we are descending from the mountain into the plain. We are made aware that the bounds of our horizon are being curtailed, that we are exchanging the table-land for the valley, and that the era of poetry is giving place to the age of prose. Indeed, paradoxical as it may seem, the most interesting feature of Chinese worship is to us its want of interest, for it is this fact which, above all others, opens up the problem to be solved. We want to know why it is

that a creed so cold, so passionless, so dead, is at this hour the dominating influence over 400,000,000 souls. We want to know why it is that a faith which, in intellectual vigor, in pietistic fervor, in poetic beauty, sinks so immeasurably beneath the creed of the Brahmin and the Buddhist, should yet have maintained its empire where the Brahmin and the Buddhist have been compelled to yield their ground. Above all, we want to know why it is that this prosaic belief, dignified with the name of a religion, has manifested in the history of China a persistency, a fixedness, a superiority to change or vicissitude, which is perhaps unparalleled in the religious life of man.

For it must be remembered that, in approaching the religion of China, we are approaching the incarnation of the spirit of conservatism. The faiths of the East are stagnant in comparison with those of the West; but in comparison with the religion of China, the faiths of the East are progressive. Brahminism is the worship of a universe whose life, though repeating itself in circles, is yet within each circle in a state of perpetual movement—creating, preserving, and destroying to create anew. Buddhism is the worship of death, and therefore the adoration of that which changes all human things. Parsism is the recognition of a world whose very essence is restless movement and struggle—a battle between light and darkness, in which the balance is ever wavering. Even Judaism, though pervaded by a strong conservative instinct, is seen ever pressing onward to a future goal. It places its Messianic glory, not in anything which it has won, but in the advent of some golden hour which is yet to be. But in China we are confronted by a spectacle in every respect the reverse of these. We see a religion whose root is in the past, and whose essence is the fact that it has resisted the influence of progress. Nor is this an accident or a peculiarity of the Chinese mind; its religious conception is but the shadow of its national life.

*By Rev. George Matheson.

it has worked out in history that image of changelessness which it has conceived in faith. In every department of life it exhibits the appearance of petrification. In arts, in manners, in the physical features of its inhabitants, in mental and moral portraiture, in language, and in religion, China has been of all lands the most untouched by time. It has resisted alike the inroads of matter and of mind. Like other countries, it has been subjected to the incursions and the conquests of barbarians; but in a manner unknown to other countries it has assimilated its conquerors to its own civilization. It has been subjected to spiritual invasions; foreign religions, like foreign tribes, have tried to settle on its soil. But here, too, the result has been the same; the old Confucian faith has not forbidden the advent of the new, but it has gradually succeeded in drawing it nearer to itself. The system of Lao-tse is the result of foreign influence, and the creed called Chinese Buddhism is the product of the Indian missionary. Yet the system of Lao-tse has lost its hold on the community, and the adherents of Chinese Buddhism are hardly distinguishable from the followers of Confucius. A civilization which has thus been able not only to resist new temporal influences, but eventually to appropriate these influences to itself, most certainly presents a spectacle of conservatism which is unique in the history of the world.

Nor in estimating the force of this tendency should we overlook the vast antiquity of the Chinese empire. Without giving any credence to its own claims on this subject, there remains abundant evidence to show that the civilization thus stereotyped has been stereotyped for ages. We regard the civilization of Athens, of Sparta, and of Rome, as representing the culture of an ancient world, but compared to the culture of China, the institutions of Athens, of Sparta, and of Rome are but of yesterday. Before Alexander had set forth on his career of conquest

—before Plato had conceived the idea of his divine republic—before Buddha had proclaimed the existence of his heavenly Nirvana—before the mythical Romulus had founded the walls of the future Western empire—before the kingdom of Solomon had partially realized the temporal hopes of the Jewish nation—there existed an empire corresponding in many respects to the medievalism of Christian Europe, and already possessed of institutions which could only have been the result of a long course of development. It had its books of cosmology, its books of history, its books of poetry, and its books of ritual. It had its astronomy and its music. It had its arts and its amenities of social life, its feasts and its dancing. It had its commerce and its products of industry; its porcelain cups have been found in the tombs of Egypt. It had a fully developed and organized feudalism, containing the gradations corresponding to duke, marquis, earl, count and baron. It had an emperor who at the same time was pope, and who officially could do no wrong—who was the focus of a universal power, and was therefore the symbol and representative of the life divine. Indeed it is not too much to say, that if a scholastic of the thirteenth Christian century could have fallen asleep, and been transported back over two thousand years, he would have been startled by the resemblance which the institutions of that early age would have presented to his own, and would probably have been forced to admit that in many important respects the pre-eminence of civilization lay on the side of the old Chinese empire.

It may be said, What has all this to do with the subject? We answer, It is the subject itself. That which seems an irrelevant introduction is here no introduction at all. For it so happens that this Chinese empire, with its feudal ranks and its conservative institutions, is itself the object of Chinese worship. The belief in millenarianism—that is to say, the expectation of a kingdom of heaven

upon earth—has in all ages of the world found some place in the religious instinct. The vision of such a kingdom has never been wholly absent from the lives of men. It glittered before the eyes of the Parsee, it shone in the imagination of Plato, it dominated the mind of the Jew, it sustained the heart of the early Christian. China, too, had her kingdom of heaven on earth, but with a difference. To the Parsee, to the Platonist, to the Jew, and to the Christian, the heavenly kingdom was something still to come; to the Chinaman it was something which had already come. The Chinese empire reveals to him the spectacle of a completed millenarianism—of a kingdom which exists no longer in a vision of the future, but in the actual experience of the passing hour. He believes that the social system in which he lives and moves is pervaded by a mysterious divine life, which, after diffusing itself through the different ranks and gradations of the constitution, finds its consummation and its climax in the life and reign of the emperor.

We come now to the all-important question, How is this object of worship to be served? In other words, what is required of a man in order to constitute him a citizen of this kingdom of heaven on earth? The answer to this question is the rise of that great teacher who has bequeathed his name to the whole state religion of China. In the earlier part of the sixth century before the Christian era, Confucius stood forth as the exponent of Chinese doctrine—stood forth especially as the exponent of the practical problem, "What must we do to be saved?" Mr. Carlyle has remarked that "great men have short biographies," and the adage in the case of Confucius is abundantly fulfilled. History has left us no distinct portraiture of the man: his life as we have it is but a collection of fragmentary incidents, unmarked by philosophical development, and unilluminated by historic interest. That he was born in the state of Lu, in the

reign of the Chow dynasty; that at six years of age he played at ceremonies and sacrifices; that at fifteen his mind was set on learning; that at nineteen he was married; that at twenty-three he began to teach; that he was very much impressed by the death of his mother, and very much unimpressed by the death of his wife; that his life was spent in wandering from court to court in the hope of obtaining converts to his ideal plans of government, and that in these missions he was oftener unsuccessful than victorious,—this is about the sum and substance of what tradition has told us of the man whose influence has become identified with the religious life of the Chinese nation.

But the interest in Confucius consists to us in the fact that he offered to his age an exposition of the Chinese religion which has been accepted by future ages. He professed to answer the question by what means a man was qualified to become a citizen of that heavenly kingdom which had been established in the Chinese empire. When he came upon the scene, he found his countrymen already engaged in endeavoring to solve that problem. He found them inquiring into the nature of that mysterious life which they believed to be diffused throughout the empire. Some held it to be the manifestation of a personal God,* some looked upon it as the emanation of an impersonal force of nature, and some saw in it a stream of beneficent life poured down by the immortal spirits of their ancestors. Accordingly, there was everywhere observed a form of religious worship. There were public sacrifices; there were private prayers addressed either to the Supreme Being or to the ancestral dead; there were rituals and rules for their performance. Confucius stood forth in the midst of this old world and cried, "I show you a more excel-

* According to Dr. Legge, the monotheistic belief preceded all the others.—Religion of China, p. 16.

lent way!" He did not, indeed, tell his countrymen that theirs was a bad way; he was far too wise and politic for that. He did not tell them that their worship of a supramundane God was a delusion, their belief in immortality a dream, and their observance of a sacrifice a waste of time.* What he did say was this: "There are things above the power of human comprehension, beyond the grasp of human intelligence; follow those things which are within the reach of that intelligence. You cannot figure to yourself the nature of God, you cannot certainly know that there is any point of contact between His nature and yours; and in the absence of such knowledge, the efficacy of your prayers and of your sacrifices must ever be an open question. But there is a region lying at the door which he who will may enter, and which is itself the entrance into the heavenly kingdom—a region within the reach of the most humble intellectual powers, and capable of being trodden by the simplest minds. That region is the world of duty; this is the door by which a man must enter the kingdom of heaven. What you have called in the past the observance of religion, is in reality but an exercise of imagination: it may represent a truth, or it may not—we cannot tell. But morality, the doing of that which is right, the performance of the plain and practical duties of the day and hour—this is a road which is open to every man, and which will lead every man that follows it to the highest goal."

Such, in brief compass, was the creed of Confucius—the substitution of a morality for a theology.† It will be seen how near it approaches to the agnosticism and the positivism of the nineteenth century. It does not deny the facts of theology; it denies that they are susceptible either

of affirmation or of negation. It regards them as beyond the reach of human experience, and therefore as no fit subject for the contemplation of man; and it proposes to put in their room those rules for the conduct of life which are the peculiar province of the moral sphere. What, then, was the nature of that morality which Confucius proclaimed as the substitute for theology? As we examine his system, there is one thing which strikes us pre-eminently: it is essentially a morality for this world. It is built upon the notion that the existing frame-work of Chinese society is destined to be a permanent thing; if that frame-work were shattered, the morality would disappear. This moral code is really a system of political economy which regulates the mutual moral duties of employer and employed, and prescribes who are to reign and who are to serve. It is an instrument for regulating the governmental relations of society. These relations, according to Confucius, are four—ruler and servant, father and son, husband and wife, elder brother and younger. The ruler, the father, the husband, and the elder brother represent the class of the employers; the servant, the son, the wife, and the younger brother represent the order of the employed; the duty of the former is to reign, the office of the latter is to obey. Yet Confucius would demand from each something more than power on the one hand, and obedience on the other; he would ask from the former, benevolence; and from the latter, sincerity. He felt that in order to consecrate the right of sovereignty in the state, and of parental authority in the household, it was necessary that sovereigns and parents should themselves be good men. Authority, to be made permanent, must be sanctified by the virtue with which it was exercised? obedience, to be made noble, must be hallowed by the freedom with which it was accepted, and the loyalty of that devotion with which it was habitually maintained.

* He made no innovation on the existing ritual.

† We have here followed the common view in preference to that of Dr. Legge.

In addition, however, to these governmental relations of ruler, father, husband, and elder brother, there was recognized by Confucius another relation which was not governmental, but social—that of the friend. It is when it touches this sphere when the morality of Confucius seems for a moment to burst its national boundaries and transcend its natural limitations; the element of subordination appears to melt away, and the sage of China seems to catch a momentary glimpse of an eternal and absolute morality which is designed not simply for employer and employed, but for man in his intercourse with man. For it is when Confucius comes to deal with the relation between friend and friend that he strikes out that remarkable principle which our Gospels have made familiar to every Christian, and which has come down to us by the name of the golden rule, "Whatsoever ye would not that others should do unto you, do not ye unto them." That Confucius is the author of this precept is undisputed, and therefore it is indisputable that Christianity has incorporated an article of Chinese morality. It has appeared to some as if this were to the disparagement of Christianity—as if the originality of its Divine Founder were impaired by consenting to borrow a precept from a heathen source. But in what sense does Christianity set up the claim to moral originality? When we speak of the religion of Christ as having introduced into the world a purer life and surer guide to conduct, what do we mean? Do we intend to suggest that Christianity has for the first time revealed to the world the existence of a set of self-sacrificing precepts—that here for the first time man has learned that he ought to be meek, merciful, humble, forgiving, sorrowful for sin, peaceable, and pure in heart? The proof of such a statement would destroy Christianity itself, for an absolutely original code of precepts would be equivalent to a foreign language. The glory of Christian morality is that it

is not original—that its words appeal to something which already exists within the human heart, and on that account has meaning to the human ear: no new revelation can be made except through the medium of an old one. When we attribute originality to the ethics of the Gospel, we do so on the ground, not that it has given new precepts, but that it has given us a new impulse to obey the moral instincts of the soul. Christianity itself claims on the field of morals this originality and this alone—"A new commandment give I unto you, that ye love one another." It claims to have set up in the world an ideal of moral beauty which is fitted so to captivate the eyes and the hearts of men as to make it no longer necessary to lay down moral rules for the conduct of life; love has taken the place of law, and that which in the old dispensation was at best but a golden rule, has become, through the power of love, a golden necessity.

Now the Chinaman has no moral ideal. His morality is not actuated by admiration for any human type of moral excellence. It has not even that ideal admiration of womanhood which tended so powerfully to inspire to a life of sacrifice the best minds of medieval Europe. Accordingly, as he is unable to point to an ideal, the Chinaman is forced to legislate; he must teach morality by rule. It is quite possible that by rule he may teach a man to perform those very precepts which Christianity reaches by love. It is quite possible, for example, that one who has no music in his soul may perform a piece of music with the most rigid exactness; he has only to learn mechanically the order and the value of the different notes, stops, and intervals, which, when completed, constitute the harmony. But if we could imagine a perfectly tuned ear—an ear susceptible of the most subtle musical influences—we should reach a conception precisely the opposite of this. Such an ear would not need to learn the notes at all: it could improvise them;

could pour them forth spontaneously and extemporaneously; could conceive in a few moments that completed whole which the unmusical man has reached only after the labor of many days. Now this is precisely the position which Christianity claims in the moral world. It professes to teach morality, not by telling men to strike particular notes of duty, but by giving them an ear for moral harmony which will enable them to choose their own notes. It lays down no code of detailed precepts; it rather seeks to impregnate the mind of its disciples with one great principle of love, which, if fully and clearly apprehended, must embrace in itself all precepts. It abolishes the law of ordinances contained in commandments; but it only abolishes them as the one blaze of sunshine abolishes the many lights of the solar planets—it takes up the separate rules into the one law of love.

It will be seen at once, that to such a view as this the moral system of Confucius presents the greatest of possible contrasts—a contrast which would remain equally great even though every precept of his morality had been identical with that of the Christian founder. For it is plain that even that golden rule, in which he seems most closely to touch Christianity, has with him a totally different significance, and for this reason, that it *is* a rule. It does not seem to us that in uttering this precept Confucius really rose above his usual governmental theory—really meant to suggest more than a law for the well-being of the state. The thought in his mind was probably this: If you do evil to others, you may be sure they will retaliate on yourselves the same form of evil; for, revenge in kind of injury is an instinct of humanity. Such retaliations can end in nothing but political anarchy; avoid them for the sake of good government, and in order to avoid them hunt that which may cause them. If, at any time you are tempted to inflict injury upon your neighbor, remember

that he will retaliate with the like injury upon yourself. Respect the peace of society—respect the balance of power—respect that system of social equilibrium which has made the preservation of one man's interests depend on the preservation of the rights of another.

Reverting now to the general characteristic of Confucianism—its attempt to substitute a morality for a theology—we have to ask the question proposed at the beginning of this lecture, What has been the cause of its success? We may first inquire negatively, What has not been the cause? For one thing, it is plain that the system of Confucius derived no aid from the sympathy of contemporaneous history. The spirit of China in the days of Confucius was not the spirit of the world in general. Side by side with him on the canvas of religious history there stand out two other prominent figures, both leaders of the thoughts of men: the one contemporaneous in time—the other nearly so; the one representing the dawning West—the other symbolizing the fading East; the one Pythagoras—the other Buddha. Yet neither of these figures has any affinity with Confucius. Pythagoras has certain speculations which present analogies to the older books of China, but to the Chinese sage himself he presents a contrast. Pythagoras was a philosopher; Confucius was a moralist. Pythagoras was a mystic; Confucius was a realist. Pythagoras was an ascetic; Confucius was a man of the world. Pythagoras would have admitted women to the higher education; Confucius made no effort to lift woman from her Eastern abasement.

Between Confucius and Buddha the outward features of dissimilarity are less marked; there are external points in which they agree. Both were of high origin, yet both in their actual circumstances were poor. Both were born into the Eastern world at a time when the Eastern world was in process of decay. Both attempted the

salvation of their age by the promulgation of a code of morals; but here the similarity ended. Their ideas of human salvation were not only different, but opposite. Buddha held this earthly existence to be so bad, that the only happiness for man was the hope of death, and he therefore taught a morality that would prepare for death;* Confucius held the present world, as represented in the Chinese empire, to be the best possible world—the very kingdom of heaven—and therefore he taught a morality which might tend to strengthen and perpetuate the things that are seen and temporal. It will thus appear that Confucius was not indebted for his success to the spirit of contemporaneous history; his great religious contemporaries moved on different lines from him, and in the elaboration of his plan of divine government he had to work out the problem alone.

Nor yet can it be said that the mind of China was attracted to the moral system of Confucius by any marvellous power exerted by his own personality. Most religions have taken their rise in the breast of some individual man; very few religions have had an individual man for their object. Of these few Confucianism is not one. We have already seen that the life of the founder, in so far at least as it has come down to us, is dry and uninteresting; and we know, as a matter of fact, that within its own limits it was a failure. Confucius achieved little while he lived; his hand seemed to be against every man, and every man's hand against him. It was when he had passed away, and when he lay at rest by the banks of the Soo River, that his countrymen began to awake to the perception that there was something in his teaching worth cultivating and worth perpetuating. Even then, however, it was the teaching, and not the teacher, that was their goal. Christianity is the worship of Christ, but Confucianism

is not the worship of Confucius. The Chinese sage is revenced on account of the message which he brought; it was the message alone that gave value to the messenger. The personal greatness of the teacher cannot explain the reception of his teaching, for it is only by reason of his teaching that he is reckoned personally great.

If, then, neither the spirit of contemporaneous history nor the private character of Confucius himself can explain the wonderful success of his mission, there is only one remaining direction to which we can look for such an explanation; it must lie in some truth of the doctrine. No form of faith could exist for half an hour except by reason of the truth which is in it; but less, in the absence of such conditions, could it persist for upwards of two thousand years. The wide and long prevalence of the system of Confucius is alone a guarantee for the fact that to the world which it addressed it bore some healing balm. We have said that the system of Confucius was not in harmony with the spirit of contemporaneous history. We shall find, it seems to us, that the points in which it was a reaction were precisely the points in which it brought healing; and in the discovery of these we shall put our hand upon the causes which have made this prosaic creed so permanent and so powerful.

These points of reaction, we think, were two. Let us first consider the fact that when Confucius appeared in the Eastern world he addressed a world which had abandoned itself to speculative dreams. Not only the Brahmin, the Buddhist, and the Parsee, but even the Chinese mind itself had become immersed in speculation; men were forgetting the light of common day in the search for that transcendental light which never shone on sea or land. On such a world the message of Confucius fell like a thunderbolt, but it was a thunderbolt fraught with sanitary influences. To an age immersed in transcendentalism there was health in the message, "Do

* It consists in the crucifixion of individual or sensuous desires.

the will, and ye shall know of the doctrine." There was health in the recall to the practical duties of life of men who had forgotten that life had any duties or that practice had any sphere. With singular felicity is this illustrated by the answer which Confucius himself gave to those desirous to hear his testimony on the subject of immortality. When he was asked whether he thought there was any efficiency in the practice of offering up sacrifices to the spirits of the ancestral dead, his reply was to this effect, "If you have not yet recognized your relationship to the souls of the living, how can you discover your relationship to the spirits of the departed? One almost seems to hear an anticipative echo of the Christian sentiment, "He that loveth not his brother whom he hath seen, how shall he love God whom he hath not seen?" We cannot doubt that to men whose studies on the subject of immortality had been limited to speculations on the abstract nature of the soul, the words of Confucius must have come with a message of power. For is it not true that, whether he meant it or not, he really pointed out to his day and generation the only road for reaching a rational conviction of immortality? The mind which speculates on the character of its own essence will inevitably wander in the mazes of uncertainty, but in the world of moral action it will probably regain its trust. The best evidence for the soul's immortality is a perception of the soul's beauty, and the highest perception of the soul's beauty, is that which arises from the experience of a noble life. The man who lives for his brother man, who recognizes that he has a relationship to every soul whose duties he must fulfill, is finding himself in the very act of losing himself, and is reaching the evidence of his immortality through the very process of sacrificial death. That Confucius saw the full force of this principle we do not believe, but his teaching was on the lines of morality which was bound to

issue in its revelation. He pointed his countrymen to a moral instead of an intellectual pathway for reaching the knowledge of transcendental things. Viewed in this aspect he was to his own age very much what Mr. Carlyle was to the generation which first beheld him; indeed we have always been impressed with a strong parallel between them. Both had a reverence for the manifestation of force or power. Both sought to recognize that power in union with virtue and moral aspiration. Both proclaimed the highest province of man—nay, the only available province for man—to be the pursuit of that virtue and the exhibition of that moral aspiration. Both in some sense were impelled to utter their call to duty by the contrary spirit of the times in which they lived. Carlyle appeared in an age in which speculation had taken the place of practice—in which the search for the absolute and the transcendental had obscured the vision of life and its moral claims. Confucius appeared in an age when men were impressed with the nothingness of finite things, and were struggling to fix their gaze upon that which resembled nothing in the heavens or the earth, or the waters under the earth. Both, therefore, in some measure, derived their force from their reactionary character. Their call to duty was a fresh sound to a world that had been listening only to monotonous strains of speculation which had issued in no end. They reminded man that there was a side of his nature which he was neglecting, and precisely that side of his nature which was likely to lead him to the highest goal. They told him that if ever he should attain to any sense of the infinite and absolute, it would not be through the limitations of the human intellect, but through the practice of that eternal and immutable morality which gives to the soul the highest image of its own eternity and its own immutability.

But there was a second point in

which the system of Confucius was a reaction against the spirit of his age, and in which, therefore, it brought health to his age. The world in which Confucius lived was not only a world of speculation; it was a scene of pessimism—that is to say, of despair. As a general rule, the men of his day believed that in the present system of things, everything was as bad as it could be. The Brahmin looked upon life as an illusion; the Buddhist viewed it as a curse; the Parsee contemplated it as a bitter and painful struggle. If men cherished hopes of a hereafter, it was a hereafter from which were to be eliminated all those elements which constituted it here. The effect of such a creed was manifest; it could only result in the neglect of the present hour; it led to the same disregard of practice which we have seen produced by the tendency to speculation. If the present world and the institutions to which it had given birth were in their nature evil—if the system of earthly things was incapable of being remedied by time and culture—if the only hope for humanity was the prospect of entering at death into a different order of being, from which would be excluded every thought of time and every vestige of human culture,—the inference suggested to the mind was the hopelessness of all action. It became the paramount duty of man to insist on doing nothing. Everything done for this world was but a link in the propagation of evil; the true attitude of an earnest soul was to fold the hands in prayer and wait for death, the great emancipator, to dissolve the old fabric and reconstruct the new.

Into this world of pessimism the creed of Confucius fell with crushing power. It proclaimed a doctrine comparatively new to Eastern minds. It told them that the chief end of man was not merely, or even mainly, to prepare for a future world—that the immediate task allotted to him was the beautifying and the glorifying of the life which now is. It told them that the life which now is admits of

being beautified and glorified—that the present system of things, so far from being radically bad, contains in its root the germs of all perfection and the sources of infinite development. And let it be remembered that, in proclaiming this doctrine, China has made a real contribution to the science of religious thought. It has often appeared as if she had no place in the science of religion; her name is generally associated with the profession of atheism. That she has rarely raised her eyes to a God above the world—that she has seldom striven to contemplate the essential nature of the divine life—that she has studiously refrained from considering the possibility of any order of being beyond the range of human experience and human faculties,—all this is true. But we must not forget that there is an order *in* the world as well as beyond it, and that the tracing of this order is itself a mode of tracing the life of God. This was precisely the point which the religions of the East *did* forget. No man would apply to Brahminism the epithet atheistic; we should more naturally attach to it the term, God-intoxicated. Yet it cannot be denied that, with all its richness of religious life, Brahminism is weak in the very point in which Confucianism is strong. Brahminism sees an order in the nature of the divine life, but her eye is riveted on the divine life above the world: she has no real sympathy with its manifestations in time—for time, and space, and matter are to her but illusions of a dream. Buddhism sees a kingdom of rest; but it is a kingdom outside the world, and is only reached by destruction of the human powers in death. Parsism worships a kingdom of light, and therefore recognizes in the divine life a source both of order and of joy; but even here the order and the joy are things above the world. The kingdom of light exists in the heavens; but it is not yet established on the earth, for its reign on earth is disputed by another empire—the kingdom of disorder and of

darkness. Thus all along the line of Eastern faiths we are confronted by the tendency to look for divine harmony in things beyond the world, and to see the light of God in regions which transcend the seen and temporal. But China comes forward with a fresh and reactionary contribution; it proclaims the thought that there is a moral order *in* the world. It declares that it is needless to look so far away for an exhibition of divine harmony—that this earth is itself a harmony. It tells the Indian that in all his search for divine order he has failed to seek it in the one spot where where it must be found—the commonplace morality of daily life. It says that, by pursuing the plain and practical duties of the hour, man can actually make this world itself the kingdom of God—that the harmony of the universe is to be found, not in some transcendental, timeless sphere, but in the completed result of those seemingly trivial acts which make up the moral history of the individual human soul. In uttering that voice, China called men out of despair, and pointed them to action. It told them that there was hope in action; that the world which they deemed an illusion was in truth a great reality, and that it was capable of being perfected by the efforts of that very finite life which had seemed to them the enemy of all perfection. Can it surprise us that in proclaiming this creed of hope for the present world, the doctrine of Confucius should have been acceptable to the world—should have been welcomed even by the faiths of pessimism? Men who take a gloomy view of life would at any time rather be found wrong than right in their calculations. Their wish invariably points in an opposite direction to their thought, and they are ready to accept any system that promises to reveal what they despairingly desire to see. Accordingly, the doctrine of Confucius has been powerful beyond its natural boundaries; it has influenced not only China, but India. It has come into contact with Buddhism, and it has affected Budd-

hism with its own spirit—has induced it to exchange its timeless paradise of Nirvana for the hope of a material heaven, beautified with earthly forms and glorified with earthly prospects. The Buddhist on the soil of China is willing to see life perpetuated in eternity, because he has received from his contact with Confucianism the hope which has made life an object of desire.

We arrive, then, at this conclusion: The doctrine of Confucius owes its success to the fact that it has made a real contribution to the science of natural religion. It gave to the faiths of the East an element which was distinctive and new. Each had been contributing its quota. The Brahmin recognized the presence of a divine life above the world. The Buddhist was impressed with the conviction of human nothingness and human impotence. The Parsee felt the power of the moral disorder in the soul, and emphasized that sense of sin which lies at the root of the highest religious feeling. But it was the province of China, without denying these aspects, to present a neglected side of the picture—a portraiture of man's potential greatness. It held up the vision of an infinite in the finite—the establishment of a kingdom of heaven on earth, the existence of a perfected society, the organization of a divine order out of the elements of time. It pointed to the prospect of a paradise below—to the advent of a pure civil government—to the possibility of a reign whose law would be universal blessing; and in the suggestion of that hope it supplied the one feature which was lacking to give the religions of the East a power over the present life.

There is, however, one thought which must forcibly impress the modern mind looking back upon the creed of Confucius through the vista of two millenniums: it is the fact that the Chinese empire herself has not realized her own vision of optimism. That empire which professed to be the very source of human develop-

ment, has been left far behind by the stream of human civilization. Is there any hope that part of her vision may yet be realized—that she herself may become sharer in the culture of the West? Were we treating of any other religion, a question so secular would be irrelevant; but in this religion the secular *is* the sacred, and the question becomes pertinent. Mr. Draper, in his "Intellectual Development of Europe," has given it a negative answer. He holds that the East has reached its period of old age, and is sinking into inevitable death. It seems to us, however, that in the case of the Chinese empire there are grounds at least for suspending such a judgment. That she has remained stagnant for centuries is true; but it is also true that the stagnancy has in large measure been the result of an external cause. For long centuries she has shut her gates against the ingress of Western civilization, lest the influx of modern views should corrupt her ancient institutions. The question is, Was her fear well founded? Had she opened her gates to the West, would she indeed have been influenced by the breath of the new atmosphere? Now that she is beginning to open them, is there a hope that she shall be influenced? We have seen that this nation, with all her conservatism, has been surprisingly assimilative. We have seen how, in ancient times, she appropriated to herself every foreign influence that touched her shores; and we can point in comparatively modern times to a manifestation of the same plastic power. In that great outburst of missionary zeal which in the Catholic Church followed the age of the Reformation, nowhere did the Jesuits experience such success as in the Chinese empire. The reason of their success was the real or fancied parallel which that empire perceived between their teaching and the statements of her own sacred writings. The success indeed was short-lived, and the movement faded; but it was not difficult to discover the cause of its failure. The

Jesuits contented themselves with trying to reach a *theological* parallel; in other words, they strove to establish a European contact with that which, on any view of the question, is the least distinctive feature of the Chinese religion. In the sacred books of China there are passages which favor monotheism; there are passages which favor polytheism; and there are passages which favor nature worship: there, as everywhere else, in individual men have speculated in different ways. But since the days of Confucius the speculative element has declined, and the Chinese mind has sought truth almost exclusively by the path of morals. If, then, modern Europe would influence this ancient empire, it must seek to do so through its own distinctive sphere—the sphere of morality. And unquestionably modern Europe has here a stronghold of which medieval Europe was oblivious. It may be questioned, notwithstanding Dr. Legge's high authority,* whether there is any real parallel between the God of Chinese speculation and the God proclaimed in the Bible; but it cannot be denied that there is a strong possibility of contact between the morality of Confucius and the morality of the Christian religion. The relation of the Christian code to the Chinese morality is the relation of the picture to its frame. China has the frame of morals, but has no picture to place within it; it wants an ideal to give beauty to its own conception. Christianity can supply that ideal. It reveals the precepts of all virtue concentrated in a single life. It unveils the vision of a kingdom of heaven, having all the order and discipline contemplated by the Chinese Utopia; but unlike that Utopia, capable of being realized not merely in the life of the collective race, but within the limits of each individual soul. In union with such a principle, the empire of China would assuredly revive. The units would emerge from the mass, and become

* Religion of China. pp. 144-148

the centres of new power. The sacrificial virtues of life would take the place of purely utilitarian motives. Woman would rise into her position of rightful dignity, and with her would arise the elements of a true social system, which would fill with the arts of peace the places now held by the forms of lethargy.

For it is worth while to ask, at this stage, What is the great practical difference between the kingdom of heaven in the system of China, and the kingdom of heaven in the system of Christianity? Both are professed attempts to establish a divine kingdom in the world—to perfect the life and practice of a visible human society. China professes to have accomplished her aim; Christianity only claims to be on the road to its accomplishment. Yet it is manifest, even to the most superficial observation, that the religion which claims to have realized the least, has been incomparably the greater power. Leaving out of view all theological distinctions, and keeping our eye merely on the sober facts of history, no man can fail to perceive that the Christian kingdom has been strong in the very point where the Confucian kingdom has proved weak. That point is human individualism. The history of Christianity is essentially the history of great men—the revelation of powerful spiritual personalities, which by their own individual force have moulded the destinies of their respective ages. The history of China, on the other hand, is the life of a collective nation. Everything moves on a prodigious scale. We are confronted by vast periods of time; we are met by the rise and fall of powerful and protracted dynasties; but we miss the originative force of single individual lives. The man is absorbed in the state; the separate personality is lost in the collective whole. One naturally asks, Why? Is it that the system of Confucius has omitted to lay stress on the necessity for individual development? On the contrary, the leading peculiarity of that system

is its intense and absorbing effort to stimulate the individual man with a sense of his potential greatness. The precepts of Confucius, from beginning to end, are pervaded by this spirit. Take the few following as illustrations of the whole:—

“What the superior man seeks is in himself; what the small man seeks is in others.”

“The superior man is dignified, but does not wrangle; social, but not a partisan. He does not promote a man simply because of his words, nor does he put good words aside because of the man.”

“A poor man who does not flatter, and a rich man who is not proud, are passable characters; but they are not equal to the poor who yet are cheerful, and the rich who love the rules of propriety.”

“Extravagance leads to insubordination, and parsimony to meanness. It is better to be mean than insubordinate.”

“A man can enlarge his principles; principles do not enlarge the man.”

“The cautious seldom err.”*

Throughout these precepts there runs one thought—the paramount importance of self-contemplation. The problem pervading them is this, How shall the individual render himself superior to other individuals? Each man's motive is himself; his stimulus is the contemplation of himself. The goal which glitters before him is the prospect of his own superiority; the vis on which lures him on is the sight of his own shadow. He has mapped out for himself many precepts, whose observance must exalt a man; but the motive underlying all is the hope of exaltation.

Now when we turn to Christianity we find that this principle of self-contemplation is conspicuous by its absence. We are confronted by a religion whose very starting-point and basis is the idea of self-forgetfulness,

* *Encyc. Britann.* 9th ed. vol. vi., pp. 264.

and which demands of its votaries before all things the voluntary surrender of their wills. As we look deeper, we are met by a paradox more startling still. We see that just in proportion as the self-forgetfulness grows, the power of the individual increases; that just as a man loses the thought of himself does he become a centre of influence to other men. The history of the Christian life as it is exhibited in the world's annals is essentially the history of strength in weakness, of personal force evoked by forgetfulness of personality. The men who come to the front in these annals are precisely the men who have their own interest in the background. We see enthusiasts kindling their contemporaries into inspiration simply because they have lost the remembrance of themselves in devotion to the interest of others. We see martyrs becoming the seed of the Church by the very force of that love which has compelled them to be martyrs, finding their life by the act of losing it. We see a kingdom which, by the admission of all history, has dominated every empire of the civilized world and modified every department of its civilization, but which has attained this eminence, not by the search for but by the sacrifice of empire—which has conquered by stooping, grown rich by impoverishment, and reached the summit of dominion by ministration to the wants of the humblest human soul. The least has become the greatest through its consciousness of being little; the servant has become the ruler through his enthusiasm for the life of service; the crown has been won by the struggle for the cross.

Here, then, we are brought to the very gates of the solution, and the problem of the two empires finds its explanation. The solution, indeed, is given by Christianity itself. Christianity has revealed to the world that the principle of all success is self-forgetfulness, and that the only road to individual greatness is the banishment of the individual from his own

thoughts. It has taught mankind that to make self the aim of life is to prevent the development of self, to dwarf its stature and to thwart its joy; and that if men would really attain to the full stature and joy of personal being, they must do so by looking out from themselves. In the light of that principle we begin to see why the religion of Confucius has fallen short of triumph. The Chinese kingdom of heaven has failed to win the suffrages of humanity because the members of that kingdom are individually weak; and its members are individually weak just because they are individually self-conscious. The paradise of China is not of the earth, earthy, but it is assuredly of the East, Eastern; it is based upon the pillars of power. Its morality is a means, not an end; its honesty is a policy, not an impulse. Its goal is everywhere the physical, the establishment and perpetuation of place, rank, authority. The virtues required for such a goal are essentially the active and masculine—prudence, calculation, foresight, concentrated energy, keenness of judgment, power to balance consequences. There is little room for the sacrificial or feminine type—the mercy that is long suffering, the charity that thinketh no evil, the love that endureth. The Chinaman's heart is not hardened but his intellectual standard is mistaken. He has mapped out for himself an Eastern estimate of greatness and he has ordered his life to suit that estimate. He has started from the principle of the survival of the strongest, and he has selected for his empire the qualities which he believes to be the strongest, but he has made a mistake in his selection. He has preferred the virtues of active enterprise to the virtues of passive endurance, and therefore he has driven out the feminine to make room for the masculine type. But in so doing he has rejected the most abiding of all forces, the most indomitable of all influences. He has left it to be taken up by a religion which, through its exercise,

has become supreme, and which is raising through its power that heavenly kingdom which China failed to build: the rejected stone of China has become in Christianity the head of the corner. If China is ever to retrieve herself, it must be by going back to incorporate this neglected element. If she is ever to realize any part of her ancient dream, it must be in union with that sacrificial principle which Christianity has made her own; for any spiritual empire other foundation can no man lay. It is in this direction alone that China can be radically influenced by the culture of the West. No mere transplanting of institutions, no simple adoption of European customs, no bare transition from an old to a modern *regime* of education, can permanently effect the cure. It is a spirit that China wants, an enthusiasm of humanity which is born of the love of man. In Christianity alone has that spirit been realized, and in contact with Christianity alone can China hope to find it. If a kingdom should await her in the future, if her vision of a crown should be fulfilled, it must be a kingdom which has been built on the service of humanity, and a crown which has been conquered through the power of sacrifice.

Here, however, we are warned by our limits that we must bring this subject to a close. In deference to these limits we have studied throughout to avoid all minutiae. We have passed by everything of the nature of detail. Our main endeavor has been to grasp and to exhibit the essence of the religion of Confucius. We have sought to put our hand upon those distinctive features which have constituted this religion a separate faith, and have left untouched those extraneous elements which it holds in common with other faiths. Perhaps at the close of this study the thought most powerfully borne in upon our minds will be an impression of the modern in the ancient. Perhaps nowhere has the Asiatic intellect presented so many points of contact to the Euro-

pean mind as in this most exclusive, most conservative, most prosaic of Eastern religions. Nowhere has the East caught so much of the spirit of Western sanguineness. Nowhere has Eastern religion come so near to the European standpoint of bringing secular institutions into harmony with religious convictions. Nowhere has the oriental spirit made an effort so thoroughly modern to embody the worship of the heart in the acts and duties of the common day. In a world which habitually and systematically divorced the human from the divine, in an age which regarded with despair all manifestations of the seen and temporal, in a community which looked upon man's chief end as a life of asceticism and contemplation, the religion of the Chinese Empire struck out a path of novelty which modern life has made a path of permanence. It pointed to the fact that there is a divine order in mean things, in little things, in prosaic things; that the drudgery of daily toil has something to do with the interests of universal government, and that in union with these interests the daily toil may hope for its reward. It has bequeathed to Europe the inheritance of a thought which alone would make Europe its perpetual debtor—the belief that religion has a share in the establishment of human civilization, and that the goal of a perfect civilization is the foundation of a kingdom of God. China, the most seemingly irreverent of all nations, has here joined hands with Judea, that nation which of all others has been most impressed with the personality of God. Approaching the subject from different angles, and looking at the problem with a contrary bias, they have arrived in one respect at the same goal. They have reached that thought to which the continent of Asia has been otherwise a stranger, that there is a sacred element underlying all secular phenomena, that the sphere of religion embraces the things which are present as well as the things which are to

come, and that the recognized thrones and dominions of this world are as much the agencies of God as the unknown principalities and powers of the heavenly places. They have transmitted that thought to Christian Europe, and Christian Europe has intensified it by its Christianity. It has not nullified the labors of the Chinaman and of the Jew—it has prosecuted these labors by a shorter and an easier method; and if ever that time should come when it shall impart its new strength to their ancient fabric, it shall only put into their hands the talisman by which their national mission shall be crowned and perfected.

RELIGION OF PERSIA. *

ZOROASTER AND THE ZEND AVESTA.

The ancient Persian religion, which I am to describe, is a natural growth from the primitive religion of our Aryan fathers, who dwelt in Iran, the region rudely bounded on the south by the Persian Gulf, on the west by the Tigris, on the east by the Indus, and which extended northwards as far as the Scythians allowed. They adored one supreme god; him they saw visibly revealed in the sky, which, as the grandest known existence, they endowed with the highest known qualities—life and personality; and to him they gave such names as Varana, Ouranos, the enclosing one; or Dyaus, Deus, Zeus, the shining one. From Iran westwards streamed those peoples, which as Celts, Romans, Greeks, Teutons, Slavs, over-spread Europe, carrying with them the primitive faith. Lastly, eastwards into India flowed the Hindus, who, in the Rig Veda, have given us the correctest picture of that faith. The supreme was not the only god; closely allied to Varana, the Sky, was he whom the Hindus in India and the Persians remaining in Persia, or rather, let us call them by the wider and more correct name, the Iranians,

remaining in Iran, called Mithra, the Friend, the knightly light of Heaven. Six others stood around the supreme, and under them all the powers of nature,—gods without number. But a settled society under centralized government could not leave the gods in nomadic disorder and independence. Among the Iranians the idea of heaven developed into monarchy; Varana became sole god with the name Ahura, Lord; the other gods lost independence, became the works of Ahura's hands and his instruments in producing his other works,—being named Amesha-Spentas, Bountiful Immortals.

But while gods became mere dependent arch-angels and angels, demons refused to own the lordship of Ahura; therefore we call the Persian religion Dualism. This view of the universe, as divided into two opposing camps, is inherited from the old Aryan mother religion, in which we find it as a crude, unclaimed, almost unconscious possession. Its origin is easily accounted for. Everywhere we see that action and reaction, doing and undoing, balance or oppose each other. Heaven is alternately in the power of day and night, of clouds and sunshine. On earth activities are found equally opposed; one plant is for food, another is for poison; one beast is a possession, another is a natural enemy. Growth, life, and welfare are produced or prevented by the state of the sky, its light or darkness, its drought or moisture, its heat or cold. Day is for labor; night protects the thief, she quells us with sleep, and invites all ravenous beasts to creep forth; day returns and hunts them back to their dens. Nowhere do the variance and opposition which are everywhere visible show themselves more vividly than in the storm. The storm not only struck the Aryan's imagination by its grandeur, but it enlisted his self-interest by taking away and bringing back the light and the rain, two of the blessings he valued most highly. If the Aryan husbandman languished

* By Rev. John Milne, M.A.

for rain, he said, speaking in poetry what he did not know how to express in the plain, straightforward prose of science, that the robber had carried off the cows: a god rushed to the rescue; the lightning was the flashing weapons; the thunder was the crash of battle or the shout of the champions; the rain following was the milk of the rescued herd. If he pined for bright, warm sunshine, the serpent Ahi had darkened it in his folds, or the ravisher had carried off the lovely woman; the deliverer was her lover or husband. The tale, with the addition of caves, forests, mountains, and of all images under which fancy may hide clouds and lightning, is endlessly varied.

But the gods had other aids than the lightning. One is the Soma. The juice of this plant, being found able to raise the spirits and to give unusual powers, was by our simple Aryan fathers declared divine. The heavenly Soma was what Greeks called Ambrosia, and gave immortality to gods and men. Stimulated by the earthly Soma offered to them in sacrifice, the gods overcame their foes. Helpful to them was also every word of worship coming from the mouths of the faithful. The gods were irresistible when to the Soma was added the holy hymn.

From this vague naturalistic dualism of the Aryans, progress was possible in two directions. The Aryans in India with pantheistic tolerance declared gods and demons, both sides of the conflict, to be merely different powers or manifestations of the great indifferent One. On the other hand, Iran took her demons quite seriously. Nor need it surprise ourselves,—among whom has prevailed, and is still common, the belief that animal death, which was a law of nature for untold ages before man was made, is a result of man's sin,—to find Iran ascribing death and other harm wrought by the powers of nature to the wickedness of the living beings, the *devas*, by whom those powers were wielded. Lest iniquity should be ascribed to Ahura Mazda

(the omniscient lord), a line of demarcation was drawn between good gods and bad demons. And just as the gods were gradually subordinated under Ahura Mazda, their monarch and maker, so for the demons a ruler and maker was found, Ahriman (wicked spirit) by name. For this result the civilized world has to thank or blame the ancient Persian religion. Let us say, then, that if Ahriman was born in Iranian times, he had been already conceived in the Indo Iranian, while Persians and Indians were still one people.

In Iran and India, the names of gods and demons have shifted ground in a way which much history and nearly the whole biography of Zoroaster have been invented to explain. In the primitive Aryan religion, as we find in the Greek and Roman offshoots from it, no sharp distinction had been drawn between gods and demons. Hindus, when settled in India, and Iranians remaining in Iran, gave for a time the names the Asura (lord), and Deva (shining one), indifferently to all the powers, the helpful and the hurtful; but when the moral sense discovered, or the fancy invented, a difference between good powers and evil, each name, formerly indifferent, had to take a side. In India, Asura (lord) cleaved to the evil, Deva to the good. In Iran, Deva adhered to the evil, while Ahura (lord) became the name of the one god. The different fortunes of the two names in India and Iran mark no conflict between the two religions; the variance was not in the creed, but in the dictionary.

At what dates Iranian dualism reached its successive degrees of elaboration until the wicked spirit, Ahriman by name, stood forth from the darkness, personal, clearly characterized, independent lord and maker of a large part of the universe, it is now impossible to say. Mazdeism, so we call the Persian religion, from its supreme god, Ahura Mazda, was not the growth of a day nor the work of one man. In Cyrus' day,

Mazdean doctrine was probably complete, but how long before we cannot tell. Nowhere in the Avesta, the Persian scriptures, is dualism more clearly expressed than in the Gathas, the very oldest part. Hear the most ancient Persian psalmist: "I proclaim the two original spirits of the world—the one bountiful, the other wicked; . . . two twins, each having his own qualities—the one good, the other bad in thought, word and action . . . The wicked spirit's law is evil; Asha is the law of the bountiful spirit, whose garment is the solid stone of the sky. At the end of the infernal world shall be the abode of the wicked. The good man who follows the Asha, he, O Ahura Mazda, shall be thy blessed companion!"

The Mazdean history of the world consists of Ahriman's invasion; the contest between him and Ahura Mazda (Ormuzd), in the midst of which Zoroaster the lawgiver is born; the expulsion of Ahriman, and the regeneration of all things. In sketching this history, we shall have to depict it in scenes which reproduce the alternating storm and calm. Ormuzd has to be painted in colors which betray the original god of the shining sky; this remains still the visible parable of his qualities. Ahriman is the storm-serpent Ahi with another name, and endowed with immoral attributes; and he is not whatever Ahura Mazda is.

Let us first treat Ahriman's invasion.

Ahura Mazda knew, for he knows everything, that Ahriman existed, and that he would scheme malice until the end. Ahriman, ignorant and dwelling in darkness, rose from the abyss, discovered the eternal light, and prepared for violence. Then Ormuzd proposed to him peace, bidding him help the good creation, and offer praise that his creatures might be immortal and undecaying. Ahriman refused, misunderstanding the divine mercy to proceed from lack of power. "I will not join thee in doing good; I will seduce thy creatures to myself."

Then Ormuzd proposed a conflict of 9,000 years; Ahriman accepted. Thereafter Ormuzd created the six Ameshaspentas, and first of these Vohu-manô, good thought. Something of the real history of these six is already known to us. Then Ormuzd made the sky, then the waters, then the earth, then plants, then animals, and finally man. That he created them out of nothing nowhere appears. Whence came matter? is a question neither put nor answered in the Avesta.

Now Ahriman, the symmetrical opposite of Ahura, began a creation exactly opposed to his. In the dark world he made six demons, opposites of the six Bountiful Immortals, first of them being Akemmano, evil thought. At length he marched against Ormuzd and the light. He eyed Ahura Mazda, he, the serpent, with that glance which in heaven is lightning and on earth is called the evil eye. With this glance he produced 99,999 diseases; then, like a serpent, he darted down to earth, and covered it with serpents, scorpions, and all kinds of vermin. He attacked the plants and withered them; the fire, and mingled it with smoke.

Here, as elsewhere, we find that in explaining the world the Iranian doctrine learned a parable from the storm. One of the storm contests which float vaguely in time and space, or are renewed again and again, is the theme of the picture; the scene is enlarged, the names are changed, the figures are multiplied, and the action is put at the beginning of the world. This time it is called the introduction of evil.

Ahriman attacked the stars; the planets joined him. In the older and simpler times all the heavenly bodies were Ahura's work; but symmetry assigned the fixed stars to Ahura, while the wandering, unsteady planets, those cousins of the sky, took part with Ahriman. But when Ahura had cast his enemies down from heaven, he built a bulwark round the sky, and the Fravashis, lance in hand,

and like hairs on the head, kept watch.

In the oldest Iranian times these Fravashis were departed spirits, ghosts, *manes*. In old Iranian time the spirits of the good went about for the last ten days of the year asking, "Who will sing to us, sacrifice to us, satisfy us with food and clothing?" and they were feasted in every house. When the rain rose from the bosom of the Voura-kasha, the waters above the firmament, then each grateful Fravashi ran to carry a share to his village or his region, saying, "I will make my native land rejoice." This worship of ancestors was an article of Aryan piety, as it is of Chinese, and it streamed down into the oldest Iranian and Indian times. Then, mortal man, taking part by prayer and sacrifice in the heavenly conflicts, differed from the gods merely by living on earth. Removed to heaven he was every way like the gods, and received worship from his posterity, for whom he with the gods had won, and still continued to win, the rain and the light, and, as the Vedas say, created the world. Forgotten as ancestors, the Fravashis were remembered as guardian angels. Every person had his Fravashi, his second self, the vehicle of all divine grace, unless by unpardonable sin he had driven him away. With the Fravashis of persons were joined the old Aryan smaller gods, who had erewhile animated nature's smaller works; therefore, in all parts of the universe these Fravashis lived, fighting against the evil powers, keeping the fire, the water, the trees, the flocks, and maintaining the universe for Ahura Mazda.

One problem solved to the Iranian mind by Ahri-man's invasion was the existence of mountains and seas. The cloud mountains, with which primitive poets had seen the storm-demon pile the horizon, and to which the robber had driven the cows, and in which the light had been hid, were translated in later prose into merely earthly mountains, the work of Ahri-man. First of them, called Hara

berezaiti, or Berez haraiti, the mountain-sea, or sea-mountain, which surrounds the whole world, was localized in the Aburz Mountains, near the south end of the Caspian Sea.

Defeated in his attempt on the sky, Ahri-man assailed the water. Tistar, in the forms of a man, a horse, a bull, met him, and poured a fearful flood for thirty days and nights upon the earth, drowning Ahri-man's creatures. Then the wind gathered the waters into the great sky-ocean Vouru-kasha. This Persian myth of the flood is merely the old story of the storm: it puts at the beginning of the world the ordinary strife of Tistar, the Dog-star or Rain god, who fights and prevails against the parching demon.

Ahri-man's invasion produced also disease and death. He attacked the sole created bull. At the moment of death the bull's soul cried to Ormuzd with a voice like that of ten thousand men: "While evil wastes the earth, and the plants have no water, where is the man whom thou wast to create to pronounce the helpful word?" Ormuzd showed him the Fravashi of Zoroaster, and the bull was satisfied. Out of his dead body rose grain and medicinal plants, from his blood the vine. His germ was carried up to the ox-horned moon, and there purified; out of it were made a bull and a cow, and then a male and female of the other kinds of animals. Here the dualistic or storm picture of the universe haunting the Iranian fancy, and differently named as one or another problem preoccupied the gazer's interest, shows the whole creation groaning and travailing, waiting for the manifestation of the man of God.

The tale told of the bull is told of Gayomard, the first man. Gayomard was made by Ormuzd, who took sweat, whereof he formed a body as of a young man fifteen years old. Gayomard saw the world black as night, and all nature in conflict. Ahri-man assailed him with Az, root and essence of our old enemy Azi the serpent, and with the wicked Bushyasta. But Gayomard lived thirty years. His germ

was purified in the sun, and forty years afterwards there grew from it out of the earth the first human couple, man and woman, in a rivas plant. The rain, which the Rig-Veda calls the sweat of the airy god, is the material of which Gayomard was made. His shining eyes, the darkness, the conflict attending his birth, need no explanation, nor his enduring for a time ere he yields to the light-destroying power, nor the fruitfulness of his death, so like that of the dying cloud-bull, nor the molten brass, common figure for lightning, made from his body. The second half of his name, Gayamaratan, identifies him with the Marutus, who in the Vedas ride on the storm and hurl the lightning as they probably had done in Indo-Iranian times. But Ahriman's other agent against man, the wicked female Bushyasta, provokes further remark.

The glorious creature, light or woman, was in the cloud-myths the prey of the spoiler or the reward of the hero. With woman there entered into the sky myths, opportunities of love and mischief—of all human passions. Woman was sometimes not sinned against but sinning, not unfortunate but faithless, not stolen but self-surrendered to the enemy. Often the Iranian Delilah, seduced by Ahriman's gifts, betrays her Samson and sometimes in his sleep. Bushyasta is one of the Pairikas, a brood of such female demons, who fly in the sea, Vouru kasha, under heaven, and fend the wholesome waters from the earth. But while demoniac they retain the female charm, beauty, like that of the Greek Medusa, irresistible, fatal. Ancient Persian poets ascribe to the fair and false the face of a Peri, the heart of a Deva. The humane and manly spirit of the Iranians and of us Teutons has relented towards the Pairikas. The Perian poet Firdusi, and the Mohammedans of the tenth century, loved the good gentle Peris as Europe has learned to love them from Thomas Moore and Victor Hugo.

II. In the Mazdean history of the world, the conflict with Ahriman is the second stage; it reveals what we may call the Heroic Age, and extends to the present time.

Let us pursue the history of mankind whose first parents we left growing entwined together in a rivas plant. Here the symmetry of dualism fails, for Ahriman produces no counter creation to man, the creature of Ahura. The human soul is rather the field where the rival powers meet in battle. Born of the same parents, one child is a servant of Mazda, another serves Ahriman. Man is free; evil grows in him from his own will. Of sin's entry into the soul we are told what follows. Ahura breathed souls already formed into the two bodies, and said to Mashya and Mashyoi, "Ye are the parents of the world; think good thoughts, speak good words, do good actions, and worship no demons." Their first thought was love for each other. Their first word was "Ahura Mazda made all good." Afterwards the demons corrupted their minds, and they said, "All these things are the evil spirit's work." Thus they became wicked, and therefore they are in hell. The demons gained such power over them that they quarreled and fought, and the demons cried to them, "Worship the demons, that your malice may rest." Then Mashya milked a cow and poured the milk towards the north, where the demons dwell. When they were fifty years old a pair of children were born to them; afterwards seven pairs were born to them, and each pair became a married couple; from them arose the generations of the whole world. One notable difference between the Persian genesis and the Hebrew is, that there the woman is, neither born man's inferior nor becomes his tempter.

Greatest of heroes was Zoroaster. If at the heart of that vast mass of mythical clothing called Zoroaster there was a real man too great for ordinary men to understand, and who

taught the system as commentators think it ought to have been, its actual blemishes being chargeable on other persons, his human nature has been overlaid and hidden with divine attributes. The newest and oldest authorities place his birth at any time between the six-hundredth year before Christ and the five-thousandth year before the Trojan war. He was born, but his birth was miraculous; he fought life's battle with miraculous weapons; he had sons, each of whom was a prodigy, and one is not yet born; he died as none but heavenly heroes die. The conflict of Zoroaster with evil differs from the conflicts we have already beheld, by being more spiritual; it is evidently a much more modern conception than the others. Ahriman is the sole enemy, not Azi the serpent. If the picture is constructed of the old imagery, the meaning was put into it after the idea of Ahriman had been fully matured. Zoroaster's birth is beset with conflict; for before he was born, the fiends, bellowing, threw themselves on his mother and tried to tear him from her. But they fell off like autumn leaves, and, alone of all mankind, Zoroaster was born laughing, with that inextinguishable laughter, I doubt not, which Homer heard among the Olympian gods; inextinguishable, not because, like the noisy laughter of fools, it never ceases, but because it is lightning. Not alone of all gods is he thus born; for the Maruts of the Vedas are born in the laughter of the lightning, laughing, like Shelley's cloud, as they pass in thunder. The ewes come from the mountain to suckle him till sunrise, as the cow suckles the Indian fire-god Agni. His eyes are piercing. At his birth the waters and the plants rejoice. He is first of priests, first of warriors, first of husbandmen. A man of light or fire-born of the cloud, in fact, differing from Gayomard in being priestly. Demons attack him again as soon as he is born; he goes against them swinging stones as large as a house, and quarried evidently where the Indian storm-gods hid the

stones they so often launch against the demons. "I will smite," he cries, "the creation of the Deva till the fiend-smiter, the Savior, arise from the region of the dawn." "Do not smite my creatures, renounce the good law of Mazda, and thou shalt gain dominion over the world for a thousand years." Then Zoroaster invoked all the powers of the holy world. He repeated the Ahuna-vairyā: "The will of the lord is the law of holiness: the riches of Vohu-mano shall be given to him who works in this world for Mazda, and wields, according to the will of Ahura, the power he gave him to relieve the poor." Hearing this spell, now worn meaningless as a Romish paternoster by centuries of incessant and irrelevant use, the demons fled, casting the evil eye: "Let us gather at the head of Arezura," the mountain at hell's gate, for the holy Zoroaster is just born, the counter-fiend."

Victorious for a while, Zoroaster, like all the heroes of light, must die. The Clementine Homilies in the third century ascribe his death to lightning hurled at him by the fiend. But if all heroes of light die—for darkness, storm, evil, return continually—they also revive; for good and evil, darkness and light, alternate in this world. A son or friend avenges the hero, or he awakes from sleep and avenges himself. Of this latter kind is Keresaspa, slayer of the dragon Srvara, on whose back Keresaspa happened one day to cook his victuals, till the supposed green knoll started up, overturned the kettle, and scattered the water. To this hero the fire, with the complaisance of Thor's hammer—which, in fact, is the same thing—the lightning, came and went as he pleased, kindled immediately the wood under the kettle, and, when the cookery was finished, withdrew. Keresaspa is, after Zoroaster, the most valiant of men. Similar is his other victory in bringing down with his arrows, after seven days' shooting, and notwithstanding the devil's wind, the bird Kamak, who with his wings overshadowed all mortals, hid the sun

and caught the rain on his back, whence along his tail it slipped useless into the barren sea. The demones Bushyasta put Keresaspa to sleep; but asleep he lives guarded by 99,999 Fravashis? As medieval Germany looked for Barbarossa; as the ancient Britons looked for Arthur, resting in Avalon, to rise when his wound should be healed; as the Bretons looked for the awakening of Morvan, Lez Breiz, ancient Persia waited for the awakening of Keresaspa. We shall meet him again.

Of those who die and are avenged, it is needful to remember Yima, known in India as Yama, another first man and first of the dead, over whom the Indian Yama reigns as king. In Iran, bending to that law of symmetry which rules all parts of the Mazdean creed, he leaves the law-giving to Zoroaster, and priority of manhood to Gayomard. Ceasing to be first of men, he has in Iran to abdicate the throne of the dead, and becomes the mere founder of the Iranian power. The Var or paradise into which he received men and women, and where they lived a blissful life after the world's destruction by a horrible winter, becomes, instead of the future heaven, a mere earthly one, similar in use to Noah's ark, and whose use we shall presently see. After a glorious reign, he is overcome by Zohak, our old enemy, Azi dahak, the fiend-serpent. He is revenged by Feridun, who, in legend, finds an invaluable ally in a blacksmith, Gao, at the sight of whose leather apron brandished on a lance, Iran leaps into revolt. Zohak is seized, and, forasmuch as evil cannot be abolished out of this world, he is not killed, but merely bound to the crater of Mount Demavend, where we shall find him hereafter.

Under the two rival spirits the Mazdean religion embattled all things. Each kind fought under its own *ratu* or chief. The vegetable kingdom had its *ratu* in the white, the heavenly *haoma*; man had his in Zoroaster. A *ratu* was found for clothes

in the sacred girdle which every Mazdean wore, and which, except at night, he might not without sin and severe punishment put off. Tistar, the dog star Sirius, in the battle against Ahriman is *ratu* of the starry host. Things on earth are arrayed under the command-in-chief of the six Amesha-Spentas: Khshathra Vairya, Divine Sovereignty, whose emblem was the lightning, poetically styled molten brass, is lord of metals; Asha Vahista, Best Order, whose instrument on earth is the flame of sacrifice, is lord of fire; Vohumano, Good Thought, becomes lord of animals: Armaiti, Piety or Prayer, wedding earth to heaven, is the genius of earth. To Haurvatat, Health and Ameretat, whose name is almost English, Immortality, is given sovereignty over plants and waters. Not arbitrarily; for in the oldest Persian scriptures we find the old Aryan faith in the power of the waters to destroy disease and death. "Come, O clouds; with your waters bring new cures. To him who brings sacrifices to you, O waters, daughters of Ahura, bring health and strength of body, and long, long life." The giver of immortality was the white *haoma* which grew in the sky sea, while round it grew the 10,000 plants made by Ahura for resisting pain and death. That fine plane tree which Xerxes, on his way to invade Greece, found near Sardis, and adorned with a golden offering, was an instrument or symbol of Ameretat: the pious king fitly intrusted it to the care of one of that band of 10,000 called the Immortals, whom we may name the Ameretat legion. At this day, more than 1200 years after the establishment in Persia of Islam, a religion so hostile to the worship of any creature, many an "excellent tree" or thorn brush on the bleak granite sides of the Alburz Mountains, or in the very paradise of Persia, is compared in poetry to a ragged beggar, so hung with shreds by visitors or wayfarers, who thus crave relief from disease, or follow blindly a custom older than history.

But among animals, some are good, or creatures of Ahura; others called bad, are creatures of Ahriman. The test of an animal was supposed to be the good or ill it does to man, but was often merely its use in some primitive myth as a symbol of disguise for god or demon. Naturalists are not aware that serpents are killed by white falcons, wild boars, goats, gazelles, wild asses; but the great old serpent is killed in many a Persian and Indian storm-myth by gods, or heroes disguised in such forms; such animals were therefore clean. The harmless frog is the victim of a religious myth; for in the waters of the Vouru-kasha grows the Homa tree of life, against which Ahriman created a frog who seeks to reach it through the water, while ten fishes swim around it guarding the approach. The ant and the tortoise are mercilessly treated for similarly lending their names to disguise the devil or his works. The dog's high rank among Ahura's creatures rests on his merits. Notwithstanding deep demerits, the hawk, whose fell swoop is the common and natural picture of the divine lightning, ranks on the same side. The peacock belonged in Persia, as in India, to the wrong side, having lent his Argus eyes for a bad use; but Ahriman assigned another reason—"If I do no good I will show that it is not because I cannot, but because I will not.

The practical immoral results of these arbitrary distinctions between clean and unclean animals were startling. To murder one of Mazda's creatures was sacrilege, because it was to kill deity itself; while to kill Ahriman's creatures was an atonement for sin, because it weakened the devil, or destroyed his allies. Manslaughter was punished with 90 stripes; but to give bad food to a shepherd's dog brought 200; killing a house dog, 700; killing a shepherd's dog, 800. The murderer of the hedgehog "with the spiny back," fighting against Ahriman's creatures "in the dark till dawn," an image of the victorious sun, deserved 1000 lashes in this life.

and perdition in the next. The slayer of the beaver, the creature who destroys the water demons, must kill 10,000 land frogs, 10,000 water frogs, 10,000 ants, 10,000 snakes, 10,000 head of each of the several kinds of vermin, and besides several other heavy penalties, must equip a priest, a warrior, a husbandman, and receive 10,000 stripes. The Mazdeans had been almost brought to the worship of dogs, hedgehogs, and beavers by their scribes and Pharisees.

In the conflict with Ahriman, laws of purity were deemed necessary, which must have made Mazdean life a burden. One had to keep not merely himself clean, but all Ahura's creation besides. Fire, earth, and water were holy. Take as an illustration, the laws connected with death. Ahriman's creatures, whether beast or men, ceased from troubling when dead, and therefore were then clean; Mazda's creatures immediately after death were seized and possessed by the *nasu* or corpse-fiend, so becoming unclean; and the higher the religious rank of the living creature the more powerful was the victorious *nasu*. From the corpse of a priest he defiled ten men close to it and to each other; from a warrior's corpse, nine men; from a husbandman's, eight; and from the corpse of a shepherd's dog, seven. When a believer died, a four-eyed dog, or one having a spot above each eye, was brought to look at the body that he might terrify and weaken the fiend; for do not our dogs see spirits, which to other eyes are invisible? The body was then removed from the house through a breach in the wall. He who singly carried a corpse was thought to have received into himself the entire *nasu*, and thus they have become a *nasu* incarnate; he was therefore beheaded, and his soul went to hell. Wherever the fiend had to be encountered, two persons were required—in funerals, religious ceremonies, or elsewhere. The bearers—at least two in number, that the *nasu's* power might be divided—carried the body on a bier,

protecting their hands with old cloths. He who covered the legs of a corpse with clothing received 600 lashes; covering the whole dead body deserved 1000—so stern, sometimes, were the Mazdean laws of thrift. The bearers proceeded, but not in rain—for the water must not be defiled by touching a dead body—to some high summit, where the body was laid on a carpet which protected the holy earth, and tied down, lest animals should carry morsels to the earth, the water, or the trees. If the faithful were able, they had to erect a *Dakhma*—a building, open above, now called Tower of Silence—for the reception of corpses. The present custom leaves the naked body there, facing the sun, and exposed to the expectant birds of prey. The holy rain which washes the pickd bones is carefully drained off. The bearers sat down three paces from the *Dakhma*, and washed their bodies with *gomez*. The way whereby the funeral had come was impassable for persons, or fire, or cattle, until the four-eyed dog had crossed it thrice; thereafter a priest reopened the way, chanting the *Ahuna-vairya* and other fiend-smiting and most healing words. After a year the *nasu's* power ceased. He who desecrated fire by burning a body was put to death, and he also who buried a body in the earth.

Whatever was once part of a body and had become separated from it, was esteemed dead and unclean. Therefore to blow a fire with the breath, or to let a hair fall on the earth, was sinful. The parings of the nails had to be carefully buried in a hole ten fingers deep, the points being turned to the north against the *nasu's* breast; three furrows were drawn round the spot with a knife, and prayers were recited. Hair had to be buried at least ten fingers deep, twenty paces from fire, thirty paces from water, and three furrows had to be drawn round the spot to imprison the *nasu*. Sickness being partial death, was treated like other uncleanness as possession by a demon; there-

fore the most effective medicine was thought to be spells and religious ritual, specially the *bareshnum* of nine nights, which I will describe as a specimen of religious purifying among real believers in a devil.

At least thirty paces from water, trees, and all that is holy, three holes are dug, two fingers deep, in a row, from north to south, and a foot apart. Parallel to these, and a foot from them, are dug three other holes. Nine feet from the latter row are dug three more. The last three holes are filled with water, the six others are filled with *gomez*. Then with metal knife, from north to south, three furrows, at the distance of nine feet, are drawn around the six holes, three around the three holes, and then six around the nine holes. Meanwhile prayers and religious formulas are repeated. Thus the *druj*, unclean demon, is shut up within the furrows, and can be driven step by step from the person of the unclean, who takes his stand at the first hole. The purifier stands outside the furrows, and with a metal spoon, fixed to a very long handle, takes *gomez* from the first hole and puts it three times on the unclean hands. Next it is applied to the front of the skull, then between the brows, then to the back of the head, then to the jaws. Thus downwards, from right to left, the *druj* is gradually driven,—from the right ear, then from the left; from the right shoulder, then from the left; from the right armpit, and the left; the chest, the back, the right breast, and the left; the right and left sides; the right hip, and the left; then from the right knee, and the left; from the right leg, and the left; the right ankle, and the left; the right instep, and the left; the sole and the left; then from the right toes, and finally from the left toes, whence he flies to the infernal North. The voice works with the hand, and is never unoccupied with fiend-smiting and most healing words. The unclean feet must not touch the earth, but rest on stones, or potsherds, or something

hard. Now the four-eyed dog is brought before the man, to scare fiends from him by his look. Stepping to the second hole, the unclean submits to the rite a second time. After it is performed at each of the six holes, the unclean sits down between the six holes and the three, washes his body fifteen times with dust, and waits until every hair of his body is dry. Then at the first of the three holes he washes himself with water, at the second hole twice, and at the third hole three times. He must now perfume his body, put on his clothes, and go home. There he sits till the end of three nights in the place of infirmity, a house provided in every neighborhood for the unclean. Then he shall wash his clothes and his body, and remain till the end of the other three nights. Again he must wash his clothes and his body. At the end of the ninth night he is clean, and may go near the fire, the water, the earth, the cow, the trees, the faithful man or woman. Thus used to be purified all who had been defiled by a corpse on which the glance of the four-eyed dog or the shadow of the devouring bird had not fallen. In later times the ceremony was undergone by devout persons once a year; could not, indeed, be taken too often; specially was it incumbent on the young man and woman when at fifteen years the sacred girdle was girt on, and the youth was admitted as a member of the Mazdean community. The *baresnum* was the baptism for washing off the impurities cleaving to man from before his birth. The unlawful purifier was beheaded; if he confessed penitently, his soul was saved; if he did not, his soul remained in hell till the resurrection.

To such ritualism, grotesque and horrid, did ancient poetic symbolism, misunderstood, bring the Mazdeans. Proof for centuries against all allurements to idolatry, to representing the spiritual God by graven or molten images, they were seduced into breach of the command-

ment by a more plausible and therefore more dangerous, form of the same temptation, and turned spiritual truth into visible ceremony. Ancient poets thirsting for the healthful, fruitful rain, knowing well what they meant, had taught men to pray for the *waters of the cow* against the hurtful demons. Poetry, parable, became myth, and was literally believed; then the heavenly myth was literally embodied in most gross earthly ceremonies. This speaking by action was found useful, probably, even to many spiritually-minded persons, who found it more expressive and more impressive than any words; an aid to thought and to feeling. But the curse due to the materializing of what is spiritual came, as it has come in the Christian and in every other religion; for helpless literalism soon changed religion's visible part in little else than an attempt to purge the devil out of the universe with *gomez*.

III. The conflict with Ahriman ends in his expulsion. Let us now see how Persian faith awaited the end of life and of the present dispensation.

While Celts, Greeks, Teutons, Slavs, Iranians, and Indians were still one Aryan people, they guessed at a future life. The scripture tells that on the third morning after death comes the fiend *Vezaresha* and carries off the wicked soul. At the head of the *Chinvat* bridge over hell into paradise all souls await judgment. The "Brig o' dread," known to the Yorkshire peasant, was known to his fathers in Aryan times; *Mohammed's* bridge, *El Si-at*, is in conception and execution entirely Persian. To the waiting soul comes a maid of divine beauty or fiendish ugliness; she is his own conscience; the dogs who guard the bridge are at her side. The wicked, unguarded by the dogs from the howling pursuit, fall from the bridge into hell. But the lovely maid leads the righteous soul above the *Hara-berezaiti*; *Vohu-mano* rises from his golden seat at heaven's gate and welcomes him into the undecaying world.

Like the storm the reign of Ahri-man began, and the idea of its end is a storm followed by a calm. The reign of Ahura is everlasting. Dualism is merely the philosophy of the present. The mighty dawn or morrow, as the Mazdeans called the latter glory, shall know no following night. A destruction and renewal of the world in the past or in the future was part of the primitive Aryan creed; but the Iranian development is notable as embracing not merely a regeneration of the world, but a personal resurrection. A winter shall destroy all that lives on earth; whereafter the men and women and animals shall come forth from Yima's paradise and replenish the earth. For no reason but that another old myth was waiting to be utilized, evil again usurps the power. The old serpent Azi is unchained from Mount Demavend. Ormuzd calls for Keresaspa; the hero awakes from his sleep and destroys the old enemy. A virgin bathing in the Kasava Lake conceives and bring forth Saoshyant, the saviour, the yet unborn son of Zoroaster, and the resurrection begins. First rises Gayomard, then Mashya and Mashyoi; and in fifty-seven years, for so long the first pairs took to be born, all shall arise. All shall know each other. Then shall all be gathered together, and a wicked man shall become as notable as a white sheep among black. The wicked shall upbraid their good friends, saying, "Why did you not make me know the good part which you yourself chose?" and if one has not done so, he shall sit in heaven ashamed. Then there is parting, and every one's tears run down to his legs; for parent, child, husband, wife, friend, brother, are torn asunder; the good weep for others, the wicked for themselves. A fiery star strikes the world, which trembles under its power as a lamb in the grasp of a wolf. Then the mountains are levelled; the elements melt; the molten brass finds its way to the abyss of hell; Ahri-man perishes, all demons perish. Three

days men are bathed in the molten brass, but for the good it is as warm milk. Then all come together again, son, brother, friend; all drink from Saoshyant's hand heavenly homa juice mingled with the milk of the heavenly cow, and he awards to everybody according to his greater or less desert.

Not the religion of Moses himself keeps this world more steadily in view than the Mazdean. Few books are less poetic, more prosaic, than the Avesta; few religions are less sentimental, more practical. The Mazdean's idea of the resurrection glorified man's body as his eternal companion; and his view of heaven, presenting a continuance of his present life, reflected honor on his earthly lot, and made it his first object to lead well the life he had.

Ere Buddhism spread into Iran, Mazdeism had no temples, though some enclosure there must have been wherein to maintain the everlasting Bahram fire. In early morning the congregation would gather under open sky, round the altar or hearth on which a fire was burning. The priest sits facing the fire on his seat, raised on a stone platform, reached by three steps. To protect the fire from his breath, he and his assistants wear a veil reaching from below the eyes to the chin. Rising, he begins: "I invite to this offering, and I prepare it for Ahura Mazda" and the other chief heavenly beings, whom he names. Then from his assistants he receives the *baresma*, the holy bunch of pomegranate, or other thornless twigs, and sprinkles it with holy water. With this *baresma* in his hand he repeats the invocation. Now he receives food, flesh, milk, butter, homa twigs, homa juice, squeezed out a day or two before, homa water—that is, water poured upon chopped homa twigs—pomegranate to mix with the homa twigs, and well-smelling wood for the fire. Prayer, and the reading of a scripture lesson follow, and he announces to the heavenly powers that all is ready. All is now present-

ed to these, and the whole congregation communicate in the sacrificial feast, which concludes with prayers for the sovereignty of Ahura Mazda. The homa offering begins. The priest chants the homa *yesht*, and solemnly elevating the cup of homa juice, presents it to the fire, drinks a few drops, and repeats the creed. Again he receives sacrificial materials like the previous, and with them mortars of stone or metal. Having invited the Fravashis to witness, he dedicates materials to them, recites Ahunavairya, and, while chanting Gathas and other scriptures, he pounds the homa, whose juice he afterwards pours out. More praises follow, and prayers, specially for all in authority—for without prayer for the king no public worship is celebrated. So the solemnity concludes.

Let us observe the morality in which this religion issued. Closely connected with the principle that the elements fire, earth, and water are holy, is the sacred duty of agriculture. He who tills the ground is as good a servant of religion as he who presents a thousand holy offerings or ten thousand prayers. *Arare est orare.* "Who is the fourth that rejoices the earth with greatest joy? It is he who cultivates most corn, grass and fruit. What is the stomach of the law? It is sowing corn again and again. When barley is sprouting, the *devas* start; when corn grows rank, the *devas* faint; when corn is ground, the *devas* groan; when wheat is brought forth, the *devas* die."

What we can gather of ancient Mazdean morality proves it rather active than contemplative, such as became Persians, the most warlike of all the Iranian peoples. The struggle between good and evil raging through the whole visible universe, raged also in the spirit and life of man, and in this conflict man was free and active, not passive. Mazdeism quickens the personality, is a system of doing, not dreaming; dissipates the dream of annihilation or absorption, which has so seduced the oriental mind; pro-

tests against throwing one's self as a drop into the stream of tendency and ceasing there; gives life a meaning by presenting it as a combat, and the natural state of man as a state of war; and gives it an object by leading to victory, not over existence, but over evil. While the Hindu, taught by his pantheistic religion to stand in awe of all things, feeling the meanness of man in the creation, fixed in his niche by the barriers of caste, timid as a slave, becomes the prey of conquerors. The Persian, a soldier by the very principle of his religion, struggles and prevails against Tourania, Assyria, Egypt; worsted in his strife with Greece, *æ* rallies; comes forth with distinguished honor from his contest with Rome; and is still a power in the world.

Notwithstanding some appearances Mazdeism is not a cruel religion. The only savage statutes are those which decree vengeance on such as injure divine beings or enhance the power of demons; for both these and those had it in their power to plague entire populations. It considerably relieves our mind to know that lashes, the ordinary punishment for sin, were commutable into money. Fasting and self-torture were forbidden. Marriage was enjoined on all who could afford it. The widow's portion of an inheritance was assigned her before even the priest could be remunerated. Impure love was severely punished. Mazdean sacrifices were rarely bloody. One of the sins severely visited in the next life was to refuse one's cast-off clothing to the poor. The Ahunavairyn tells us that Mazda has established government and committed to it his power for the protection of the poor.

But no Persian virtue is more praised by the ancients, perhaps none more astonished the cunning Greeks, than Persian truthfulness, which wins at this day the high respect of Indians dealing with Parsees. The most shameful thing in Persian eyes was lying. Debts and other faults were specially detested for the lies required

to conceal them. Children were taught truth-telling as they were taught science. Ahriman is the liar of liars. The religious law reckoned severely with the breaker of an engagement. Persians were very slow to take an oath; but the pledge of a Persian's hand was like the Olympian oath by the Styx.

The Mazdean priesthood was and still is hereditary. The sons of the priestly caste are not compelled, but no others are permitted, to be priests. Their official name was Athravan, Fireman. Naturally they never call themselves Magi in their own scriptures, for Magi was merely the name of the Median tribe to which the priesthood belonged. The age of Cyrus, so decisive in the history of religion and of the world, saw Mazdeism make a long step forward. Within one lifetime Cyrus conquered Media, till then head of all Iran; became lord of Iran, of Babylon, and of much besides; he introduced the Magi into Persia, he permitted the Jews to return from their Babylonish exile to their own land, and Buddha and Confucius were alive. The Medians were a more polished people than the Persians; and we may infer from Cyrus's policy that the Magi were more cultivated, more expert, than the Persian priests, and possessed a more precise ritual and a better liturgy than theirs. While his son and successor, Cambyses, was absent on his Egyptian campaign, the Magus Gaumata raised the standard of rebellion, pretending to be Cambyses' brother Smerdis, whom the king had secretly murdered before his departure. After Cambyses had ended his own life on hearing the news, Darius and his Persians quenched the rebellion, the more bloodily because the Magian blood was foreign. Thus Darius Hystaspis became king by the grace of Mazda. The Persian invasion of Greece by Xerxes, instead of making Mazda supreme over kindred Aryan nations in the West, corrupted his worship; for an image of Diana taken among

the spoil became a model, and such images were reared in several chief cities. In the year 331 before Christ, the sun of ancient Persia set at Arbela, and for a time the sky of Mazdean spirituality was clouded by the grosser charms of Greek idolatry. After eighty years of Alexander and his successors, Askh unfurled the blacksmith's apron, and became the first of the Parthian kings, who governed Iran until, in the year 220 after Christ, the blacksmith's apron was once more thrown to the breeze, and led to a third rebellion to victory. The Persian and Mazdean family of Sasan ascended the Persian throne in the person of Ardeshir or Artaxerxes, and to cement the empire, the national religion was revived. Persia had never been better governed than it was by the Sasanians. The Magian observances, formerly confined in their entirety to the priesthood, now became law. But the literalism which put to death a prime minister for burying a corpse, and which would not allow Jews to perform their religious ablutions because these desecrated the water, and which for the same reason, deposed a king, who, in the simple faith that water was made for man and not man for water, had erected a bath, was too much for laity. Among men and women who, having their work to do, had no time to guard against dropping a hair upon the ground, and to hold funeral services over the parings of their nails, Mazdeism stood self-condemned when made compulsory. Mazdean ritual was fatal to Mazdean doctrine, Buddhism, and Christianity, and Manichean heresy, made alarming progress. In the year 642 the Mohammedans conquered the Persian empire, and Islam became the established religion. In a century its truth, its simplicity, and its likeness to the best features of Mazdeism, gained a large majority of the Persians. In our day a very ignorant few in Iran still burn the Bahram fire and offer the homa; but Bombay and Surat contain nearly all, about 100,000 in

number. There they refuse to admit into the body any one not of pure Parsee blood. Leaving religious formality very much to the priests, they distinguish themselves by very good morality, believing that there is one God and no devil, but that out of the heart proceed evil thoughts. They are diligent in business and very successful therein; trying in the spirit of their prophet to make life happy for themselves and for their brethren, with one result that no Parsee is a beggar.*

The Parsee scripture is the Avesta. In the year 325 of our era, while the Roman Emperor Constantine the Great and the Christian bishops in council assembled at Nice were laying down the creed of Christendom, the Shah of Persia, Shaphur II., fixed by decree the authorized text of the Avesta or Law, which we now have, differing little, probably, so far as it goes, from the scriptures known to Darius. It is only a fragment, however, a small book, written not in an-

* Although what I have described was the ordinary faith—the effective religion of the Mazdeans—we cannot suppose that Mazdeans, more than Christians or the professors of any other religion, were entirely at one in their thoughts upon what eye hath not seen and ear hath not heard. We have knowledge from early times of some who shrank from leaving the universe at the mercy of two contending rivals, and who sought a higher unity. This they found in boundless Time. His visible embodiment was the sky, whose movements, superior to both Ormuzd and Ahriman, bring day and night, summer and winter, growth and decay, life and death, joy and sorrow. This regard to time or fate, a return to the now lifeless original Arayan Asura of the shining sky, became the orthodox creed of Iran two centuries before the Mohammedan conquest. Still it smuggles a disguised existence among Persian Moslems, who in thought and speech, in prose and verse, relieve their Islam, or quiet submission of the will of the living personal God, by cursing Time, that beladame decrepit with age but undying; and the sky, the vault, the revolving wheel, which, after flinging its creatures alive upon this world, crushes them to death.

cient Persian, but apparently in a dialect of Media, the native land of the Magi. When it was discovered to the learned of Europe in the middle of last century, its uncommon stupidity led half of its critics to pronounce it a very recent forgery. Its oldest morsels are the most spiritual; the newer parts view religion through the eyes of priests, scribes, and Pharisees. No great ancient religion has left so poor a record.

Among Aryans the Parsees are what the Jews are among Shemites, exiles from their own land, yet clinging firmly to the faith of their fathers. Some, however, are trying to open their religion to all the life and breath and light which are stirring the world; to bring back religion to first principles, not insisting on explaining in hard and fast terms or doctrines the divine, which they recognize as infinite, nor upon embodying our aspirations—that is, our worship—in fixed material forms; but guiding man, merely as man, in his efforts after the ideal and perfect, and in his duty of living not for self, but for all.

It cannot have escaped you that in form, and also in spirit, Mazdeism is closely allied to the Jewish religion. For this agreement we were prepared by knowing that around the sources of the Euphrates, ere Aoraham crossed the river and became a Hebrew, his kindred and the Aryans lived side by side. Many centuries afterwards, when, in altered circumstances, Jews in Babylon met Persians, and regarded them as their masters and best friends, this renewed contact made Judaism conscious of the outer world and conscious of herself; aware of what others had, and of what she herself possessed, but had not well used. Judaism was quickened and enriched. Not formerly devoted to the worship of one God.—sent, say the prophets, into banishment for worshipping many Gods,—the Jews returning from Babylon acknowledged, like the Persians, only one. Loftier views of Jeh vah'e

greatness brought more into play angels and archangels, His messengers—and guardian angels, His continual instruments. The Talmud tells us that the names of the archangels came from Babylon, whence the names of some devils also have come. The Asmodeus, who in the book of Tobit, strangles Sara's seven husbands, is Ashma deva—that is, Ahri-man under one of his older names. The grotesque humiliation under which he has labored ever since Le Sage wrote his famous romance, illustrates a tendency of these latter days. Purer views of God's righteousness separated farther, in the

Jewish mind, between God and Satan, until this accusing angel came to wear the form and features of Ahriman. A coming Messiah, a personal resurrection, the restoration of all things, were henceforth popular articles in the Jewish creed.

Mohammed, whose very name for religion is a Persian word, El Din, underlies a heavy debt to Jew, Christian and Parsee.

Mazdeism, small and perishing in body, is everywhere present in spirit. If at death she has little to bequeath, it is because she gave her wealth generally around her while she was alive.

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THE BIRTH AND GROWTH OF MYTH

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I.

NATURE AS VIEWED BY PRIMITIVE MAN.

THE application of the scientific method to the study of man has given a wider meaning to the word "myth" than that commonly found in the dictionaries. These explain it as fable, as designedly fictitious, whether for amusement only, or to point a moral. The larger meaning which it holds to-day includes much more than this—to wit, the whole area of intellectual products which lie beyond the historic horizon and overlap it, effacing on nearer view the lines of separation. For the myth, as fable only, has no place for the crude fancies and grotesque imaginings of barbarous races of the present day, and of races at low levels of culture in the remote past. And so long as it was looked upon as the vagrant of fancy, with no serious meaning at the heart of it, and as corresponding to no yearning of man after the truth of things, sober treatment of it was impossible. But now that it, with its prolific offspring, legend and tradition, is seen to be a necessary travelling through which the mind of man passed in its slow progress toward certitude, the study and comparison of its manifold, yet, at the center, allied forms, and of the conditions out of which they

arose, takes rank among the serious inquiries of our time.

Not that the inquiry is a new one. Five hundred years before Christ, *i.e.*, in the days of Euripides, the Greeks had identified the gods of their Olympus with the sun and sky, although Anaxagoras was sentenced to death and afterward banished for calling the moon a lump of lifeless matter, and in succeeding times myths were either emptied of their meaning or exalted to historic rank. In the hands of Christian apologists, from the ages of the Fathers to the present day "heathen" mythologies have been cited as witnesses to the corruptions of the faith, and, under the solvent of blundering etymologies, have been made to yield traces of a primitive revelation and of the doctrine of a Trinity! But if the inquiry is not a new one, the method of its prosecution is—a method justified by its works. Because, for the assigning of its due place in the order of man's mental and spiritual development to myth, there is needed that knowledge concerning his origin, concerning the conditions out of which he has emerged, and concerning the mythologies of lower races and their survival in unsuspected forms in the higher races, which was not only beyond the reach, but the conception also, of men until this century.

Except, therefore, as curiosities of literature, we may dismiss the *Lemprière* of our school-days, and with him "Cas-aubon"-Bryant and his key to all the mythologies—a key that fits no lock; with him, too, in all respect be it added, Mr. Gladstone, with his visions of the Messiah in Apollo, and of the Logos in Athéné.

After this short preface, we may start with the brief and plain statement, to be justified by what follows, that the birth-place of myth is in the endeavor of primitive man to interpret the meaning of his surroundings. By primitive man, I do not, of course, mean the nameless savage of the old Stone Age, who, if he had brains and leisure enough to make guesses about things, has left us no witness of the fact. His relics, and those of his successors to a period which is but as yesterday in the history of our kind, are material only, and not until we possess the symbols of man's thought, whether in language or rude picture, do we get an inkling of the meaning which the universe had for him, in the detail of his pitiless daily life, in the shapes and motions of surrounding objects, and in the majesty of the heavens above him. Even then the thought is more or less crystallized, and if we would watch it in the fluent form, we must have keen eye for the like process going on among savages yet untouched by the Time-Spirit, although higher in the scale than the Papuans and hill tribes of the Vindhya. For we cannot so far lull our faculty of thought as to realize the mental vacuity of the savage, but we may, from survivals nowadays, lead up to reasonable guesses of savage ways of looking at things in by-gone ages, and the more so when we can detect relics of these among the ignorant and superstitious of modern times.

What meaning, then, had primitive man's surroundings to him when eye and ear could be diverted from prior claims of the body, and he could repose from watching for his prey and from listening to the approach of wild beast or enemy? He had the advantage, from greater demand for their exercise, in keener senses of sight, hearing, smell, and touch than we enjoy; nor did he fail to take in facts in plenty. Only there was this vital defect and difference, that in his brain every fact was pigeon-holed, charged with its own narrow meaning only, as in small minds among ourselves we find place given to inane, peddling detail, and no advance made to general and wide con-

ception of things. In sharpest contrast to the poet's utterance—

"Nothing in this world is single;
All things by a law divine
In each other's being mingle,"

every fact is unrelated to every other fact, and, therefore, interpreted wrongly.

Man, in his first outlook upon Nature, was altogether ignorant of the character of the forces by which he was environed; ignorant of that unvarying relation between effect and cause which it needed the experience of ages and the generalizations therefrom to apprehend, and to express as "laws of nature." He had not even the intellectual resource of later times in inventing miracle to explain where the necessary relation between events seemed broken or absent.

His first attitude was that of wonder, mingled with fear—fear as instinctive as the dread of the brute for him. The sole measure of things was himself; consequently, everything that moved or that had power of movement, did so because it was alive. A personal life and will was attributed to sun, moon, clouds, river, waterfall, ocean, and tree, and the varying phenomena of the sky at dawn or noonday, at gray eve or black-clouded night, were the manifestation of the controlling life that dwelt in all. In a thousand different forms this conception was expressed. The thunder was the roar of a mighty beast; the lightning a serpent darting at its prey, an angry eye flashing; the storm demon's outshot forked tongue; the rainbow a thirsty monster; the water-spout a long-tailed dragon. This was not a pretty or powerful conceit, not imagery, but an explanation. The men who thus spoke of these phenomena meant precisely what they said. What does the savage know about heat, light, sound, electricity, and the other modes of motion through which the Proteus force beyond our ken is manifest? How many persons who have enjoyed a "liberal" education can give correct answer, if asked off-hand, explaining how glaciers are born of the sunshine, and why two sounds, travelling in opposite directions at equal velocities, "interfere" and cause silence? I have been surprised at the number of young men, hailing from schools of renown, who have given me the most ludicrous replies when asked the cause of day and light, and the distance of the earth from the sun.

That the comparison between things inanimate and animate arising from su-

perfidial analogies is inborn in the savage, is illustrated all the world over. The North American Indians prefer a hook that has caught a big fish to the handful of hooks that have never been tried, and they never lay two nets together, lest they should be jealous of each other. The Bushmen thought that the traveler Chapman's big wagon was the mother of his smaller ones; and the natives of Tahiti sowed in the ground some iron nails given them by Captain Cook, expecting to obtain young ones. When that ill-fated discoverer's ship was sighted by the New Zealanders, they thought it was a whale with wings. The king of the Coussa Kaffirs, having broken off a piece of the anchor of a stranded ship, soon afterward died, upon which all the Kaffirs made a point of saluting the anchor very respectfully whenever they went near it, regarding it as a vindictive being. But, perhaps, one of the most striking and amusing illustrations is that quoted by Sir John Lubbock from the "Smithsonian Reports," concerning an Indian who had been sent by a missionary to a colleague with four loaves of bread, accompanied by a letter stating their number. The Indian ate some of the bread, and his theft was, of course, found out. He was sent on a second errand with a similar batch of bread and a letter, and repeated the theft, but took the precaution to hide the letter under a stone while he was eating the loaves, so that it might not see him!

As the individual is a type of the race, so in the child's nature we find analogy of the mental attitude of the savage ready to hand. To the child everything is alive. With what timidity and wonder he first touches a watch, with its moving hands and clicking works; with what genuine anger he beats the door against which he has knocked his head, whips the rocking-horse that has flung him, then kisses and strokes it the next moment in token of forgiveness and affection. Even among civilized adults, as Mr. Grote remarks, "the force of momentary passion will often suffice to supersede the acquired habit, and an intelligent man may be impelled in a moment of agonizing pain to kick or beat the lifeless object from which he has suffered." The mental condition which causes the wild native of Brazil to bite the stone he stumbled over, may, as Dr. Tylor has pointed out in his invaluable work on "Primitive Culture," be traced along the course of history, not merely in impulsive habit,

but in formally enacted law. It among barbarous peoples we find, for example, the relatives of a man killed by a fall from a tree taking their revenge by cutting the tree down and scattering it in chips, we find a continuity of idea in the action of the court of justice held at the Prytaneum in Athens to try any inanimate object, such as an axe, or a piece of wood, or stone, which had caused the death of any one without proved human agency, and which, if condemned, was cast in solemn form beyond the border. "The spirit of this remarkable procedure reappears in the old English law, repealed only in the present reign, whereby not only a beast that kills a man, but a cart-wheel that runs over him, or a tree that falls on him and kills him, is deodand, or given to God, *i.e.*, forfeited and sold for the poor." Among ancient legal proceedings in France we read of animals condemned to the gallows for the crime of murder, and of swarms of caterpillars which infected certain districts being admonished to take themselves off within a given number of days on pain of being declared accursed and excommunicated. When the New Zealander swallows his dead enemy's eye that he may see further, or gives his child pebbles to make it stony and pitiless of heart; when the Abipone eats tiger's flesh to increase his courage, such confusion in the existence of transferable qualities as these acts imply, has its survivals in the old wives' notion that the eye-bright flower, which resembles the eye, is good for diseases of that organ, in the medical remedy for curing a sword-wound by nursing the weapon that caused it, and in the old adage, "take a hair of the dog that bit you"—as the Scandinavian Edda says, "Dogs, hairs heal dogs, bites."

II.

PERSONIFICATION OF THE POWERS OF NATURE.

IN selecting illustrations from the literature of savage mythology, the material overburdens us by its richness. Much of it is old, and, like refuse-heaps in our mining districts, once cast aside as rubbish, but now made to yield products of value, it has, after long neglect, been found to contain elements of worth, which patience and insight have extracted from its travelers' tales and quaint speculations. That for which it was most prized in the

days of our fathers is now of small account; that within it which they passed by we secure as of lasting worth. Much of that literature is, however, new, for the impetus which has in our time been given to the rescue and preservation of archaic forms has reached this, and a host of accomplished collectors have secured rich specimens of relics, which in the lands of their discovery have still the authority of the past, unimpaired by the critical exposure of the present.

The subject itself is, moreover, so wide reaching, bringing the ancient and the modern into hitherto unsuspected relation, showing how in customs and beliefs, to us unmeaning and irrational, there lurk the degraded representations of old philosophies, and in what seems to us burlesque, the survivals of man's most serious thought.

One feels this difficulty of choice and this temptation to digress in treating of that confusion inherent in the savage mind between things living and not living, which was the main subject of my former paper. By numberless illustrations at hand, this confusion might be shown to extend to the names or images of persons, and to the persons themselves, as well as to other relations which are purely symbolical.

For example, the practice of burning or hanging in effigy, by which a crowd expresses its feelings toward any unpopular person, is a relic of the old belief in a real and sympathetic connection between a man and his image; a belief extant among the unlettered in by-places of civilized countries. When we hear of North American tribes making images of their foes, whose lives they expect to shorten by piercing these images with their arrows, we remember that these barbarous folk have their representatives among us in the Devonshire peasant, who hangs in his chimney a pig's heart stuck all over with thornprickles, so that the heart of his enemy may likewise be pierced. The practice among the Dyaks of Borneo, of making a wax figure of the foe, so that his body may waste away as the wax is melted, will remind the admirers of Dante Rossetti, how he finds in a kindred mediæval superstition the subject of his poem "Sister Helen," while they who prefer the authority of sober prose may turn to that storehouse of the curious, Brand's "Popular Antiquities." Brand quotes from King James, who, in his "Dæmonology," book ii. chap. 5, tells us that "the devil teacheth how to make pictures of wax or

clay, that by roasting thereof the persons that they bear the name of may be continually melted or dried away by continual sickness;" and also cites Andrews, the author of a "Continuation of Henry's Great Britain," who, speaking of the death of Ferdinand, Earl of Derby, by poison, in the reign of Elizabeth, says: "The credulity of the age attributed his death to witchcraft. The disease was odd, and operated as a perpetual emetic; and a waxen image, with hair like that of the unfortunate earl, found in his chamber, reduced every suspicion to certainty." The passage from practices born of such beliefs to the use of charms as protectives against the evil-disposed and those in league with the devil, and as cures for divers diseases, is obvious. But upon this it is not needful to dwell; what has been said will suffice to show that the superstitious man is on the same plane as the savage, but, save in rare instances, without such excuse for remaining, as Bishop Hall puts it, with "old wives and starres as his counsellors, charms as his physicians, and a little hallowed wax as his antidote for all evils."

But we have traveled in brief space a long way from our picture of primitive man, weaving out of streams and breezes and the sunshine his crude philosophy of personal life and will controlling all, to the peasant of to-day, his intellectual lineal descendant, with his belief in signs and wonders, his forecast of fate and future by omens, by dreams, and by such pregnant occurrences as the spilling of salt, the howling of dogs, and changes of the moon—in short, by the great mass of superstitions which yet more or less influence the intelligent, terrorize the ignorant, and delight the student of human development.

As, however, a good deal hinges upon the evidences in savage myth-making of the personification of the powers of nature, we must return to this for awhile. Obviously, the richest and most suggestive material would be supplied by the striking phenomena of the heavens, chiefly in sunrise and sunset, in moon, star, star-group, and meteor, cloud and storm, and, next in importance, by the strange and terrible among phenomena on earth, whether in the restless waters, the unquiet trees, the grotesquely-shaped rocks, and the fear inspired in man by creatures more powerful than himself. Though the whole range of the lower culture, sun, moon, and constellations are spoken of as living creatures, often as ancestors, he-

roes, and benefactors who have departed to the country above, to heaven, the *heaved* uplifted land. The Tongans of the South Pacific say that two ancestors quarreled respecting the parentage of the first born of the woman Papa, each claiming the child as his own. No King Solomon appears to have been concerned in the dispute, although at last the infant was cut in two. Vatea, the husband of Papa, took the upper part as his share and forthwith squeezed it into a ball and tossed it into the heavens, where it became the sun. Tonga-iti sullenly allowed the lower half to remain a day or two on the ground. But seeing the brightness of Vatea's half, he compressed his share into a ball and tossed it into the dark sky, during the absence of the sun in the nether world. Thus originated the moon, whose paleness is owing to the blood having all drained out of Tonga-iti's half as it lay upon the ground. Mr. Gill, from whose valuable collection of southern myth this is quoted, says that it seems to have its origin in the allegory of an alternating embrace of the fair Earth by Day and Night. But despite the explanations, more or less strained, which some schools of comparative mythologists find for every myth, the savage is not a conscious weaver of allegories, or an embryo Cabalist, and we shall find ourselves more in accord with the laws of his intellectual growth if, instead of delving for recondite and subtle meanings in his simple-sounding explanations of things, we take the meaning to be that which lies on the surface. More on this, however, anon. Among the Red Races, one tribe thought that sun, moon, and stars were men and women who went into the sea every night and swam out by the east. The Bushmen say that the sun was once a man who shed light from his body, but only for a short distance, until some children threw him into the sky while he slept, and thus he shines upon the wide earth. The Australians say that all was darkness around them till one of their many ancestors, who still shine from the stars, shedding good and evil, threw, in pity for them, an emu's egg into space, when it became the sun. Among the Manacicas of Brazil, the sun was their culture-hero, virgin-born, and their jugglers, who claimed power to fly through the air, said that his luminous figure, as that of a man, could be seen by them, although too dazzling for common mortals.

The sun has been stayed in his course in other places than Gibeon, although by mechanical means of which Joshua ap-

pears to have been independent. Among the many exploits of Maui, abounding in Polynesian myth, are those of his capture of the sun. He had like Prometheus, snatched fire from heaven for mortals, and his next task was to cure Ra, the sun-god, of his trick of setting before the day's work was done. So Maui plaited thick ropes of cocoanut fiber, and taking them to the opening through which Ra climbed up from the nether world, he laid a slip-noose for him, placing the other ropes at intervals along his path. Lying in wait as Ra neared, he pulled the first rope, but the noose only caught Ra's feet. Nor could Maui stop him until he reached the sixth rope, when he was caught round the neck and pulled so tightly by Maui that he had to come to terms, and agree to slacken his pace for the future. Maui, however, took the precaution to keep the ropes on him, and they may still be seen hanging from the sun at dawn and eve. In Tahitian myth, Maui is a priest, who, in building a house which must be finished by daylight, seizes the sun by its rays and binds it to a tree till the house is built. In North American myth, a boy had snared the sun, and there was no light on the earth. So the beasts held council who should undertake the perilous task of cutting the cord, when the dormouse, then the biggest among them, volunteered. And it succeeded, but so scorched was it by the heat that it was shriveled to the smallest of creatures. Such a group of myths is not easy of explanation; but when we find the sun regarded as an ancestor, and as one bound, mill-horselike, to a certain course, the notion of his control and check would arise, and the sun-catchers take their place in tradition among those who have deserved well of their race. It is one among numberless aspects under which the doings of the sun and of other objects in nature are depicted as the doings of mortals, and the crude conceptions of the Ojibwas and the Samoans find their parallel in the mythologies of our Aryan ancestors. Only in the former we see the mighty one shorn of his dignity, with noose round his neck or chains on either side; whilst in the latter we see him as Herakles, with majesty unimpaired, carrying out the twelve tasks imposed by Eurystheus, and thus winning for himself a place among the immortals.

III.

THE SUN AND MOON IN MYTHOLOGY.

THE names given to the sun in mythology are as manifold as his aspects and influences, and as the moods of the untutored minds that endowed him with the complex and contrary qualities which make up the nature of man. *Him*, we say, not *it*, thus preserving in our common speech a relic, not only of the universal personification of things, but of their division into sex.

The origin of gender is most obscure, but its investment of both animate and inanimate things with sexual qualities shows it to be a product of the mythopœic stage of man's progress, and demands some reference in these papers. The languages of savages are in a constant state of flux, even the most abiding terms, as numerals and personal pronouns, being replaced by others in a few years. And the changes undergone by civilized speech have so rubbed away and obscured its primitive forms that, look where he may, the poverty of the old materials embarrasses the inquirer. If the similar endings to such undoubtedly early words as father, mother, brother, sister, in our own and other related languages, notably Sanskrit, afford any clue, it goes rather to show that gender was a later feature than one might think. But there is no uniformity in the matter. It seem pretty clear that in the early forms of our Indo-European speech there were two genders only, masculine and feminine. The assignment of certain things conceived of as sexless to neither gender, *neutrius generis*, is of later origin. Some of the languages derived from Latin, and, to name one of a different family, the Hebrew, have no neuter gender, whilst others, as the ancient Turkish and Finnish, have no grammatical gender. In our own, under the organic changes incident to its absorption of Norman and other foreign elements, gender has practically disappeared (although ships and nations are still spoken of as feminine), the pronouns *he*, *she*, *it*, being its representative. Such a gain is apparent when we take up the study of the ancestral Anglo-Saxon, with its masculine, feminine, and neuter nouns, or of our allied German with its perplexities of sex, as, *e.g.*, its masculine spoon, its feminine fork, its neuter knife. Turning for a moment to such slight aid as barbaric speech gives, we find in the languages of the hill tribes of South India a curious

disjunction made; rational beings, as gods and men, being grouped in a "high caste or major gender," and living animals and lifeless things in a "casteless or minor gender." The languages of some North American and South African tribes make a distinction into animate and inanimate gender; but, as non-living things, the sun, the thunder, the lightning, are regarded as persons, they are classed in the animate gender.

Further research into the radicals of so relatively fixed a language as Chinese, and into more mobile languages related to it, may, perhaps, enlighten the present ignorance; but one thing is certain, that language was "once the scene of an immense personification," and has thereby added vitality to myth. Analogies and conceptions apparent to barbaric man, and in no way occurring to us, caused him to attribute sexual qualities not only to dead as to living things, but to their several parts, as well as, in the course of time, to intellectual and abstract terms. Speaking broadly, things in which were manifest size and qualities, as strength, independence, governing or controlling power, usually attaching to the male, were classed as masculine; whilst those in which the gentler and more subordinate features were apparent were classed as feminine. Of course, marked exceptions to this will at once occur to us, as, *e.g.*, in certain savage and civilized languages, where the sun is feminine and the moon is masculine, but in the main the division holds good. The big is male, and the small is female. The Dyaks of Borneo call a heavy down-pour of rain a *he* rain; and, if so strength-imparting a thing as bread is to be classed as either masculine or feminine, we must agree with the negro who, in answer to his master's question, "Sambo, where's the bread?" replied, "De bread, massa? him lib in de pantry." The mediæval Persians are said to have distinguished between male and female even in such things as food and cloth, air and water, and prescribed their proper use accordingly; while, as Dr. Tylor, from whom the above is quoted, adds, "even we, with our blunted mythologic sense, cannot give an individual name to a lifeless object, such as a boat or a weapon, without in the very act imagining for it something of a personal nature."

But we must not stay longer in these attractive byways of philology, however warranted the digression may be, and must return to the many-titled sun.

While in the more elaborate mythologies of classic peoples we find him addressed in exalted terms which are still the metaphors of poetry, we are nearer the rough material out of which all myth is shaped when among races who speak of sun, moon, and stars as father, mother, and children, and who mean exactly what they say. We may find similar relationships in the solar and lunar deities of Egyptian and classic myth, but profound moral elements have entered into these and dissolved the material. We are face to face with the awful and abiding questions personified in Osiris and Isis, in *Œdipus* and *Jocaste*, where for us the sunlight pales and the storm clouds are dispersed before the dazzling mysteries of human life and destiny.

No such matters confront us when in Indian myth we read that the moon is the sun's sister, an aged, pale-faced woman, who in kindness led to her brother two of the tribe who had sprung through a chasm in the sky to the pleasant moonlit land. Neither do they in Australian myth, which shows that the dwellers on Olympus had no monopoly of conjugal faithfulness. For in it the moon's motions are explained as the chase of a jealous husband, one of the bright stars, who found the inconstant in the act of eloping with the moon. Among the bushman, the moon has incurred the sun's anger and is hacked smaller and smaller by him, till, begging for mercy, a respite is given. But as soon as he grows larger the sun hacks him again. In Slavonic myth the sun cleaves him through, for loving the morning star. The Indians of the far west say that, when the moon is full, evil spirits begin nibbling at it, and eat a portion every night till it is all gone; then a great spirit makes a new moon, and, weary with his toil, falls asleep, when the bad spirits renew their attack. Another not uncommon group of myths is that which speaks of sun and moon as borne across the heavens on the backs of ancestors, as in Greek myth *Atlas* supports the world.

But a still larger and more widespread body of myth has its source in the patches on the moon's face. In the Samoan Islands there are said to be a woman, a child, and a mallet. A woman was once hammering out paper cloth, and seeing the moon rise, looking like a great bread-fruit tree, she asked it to come down and let her child eat a piece of it. But the moon was very angry at

the idea of being eaten, and gobbled up woman, child, and mallet, and there they are to this day. The Selish Indians of North-Western America say that the little wolf was in love with the toad, and pursued her one moonlight night, till, as a last chance, she made a desperate spring on to the face of the moon, and there she is still. In Greenland myth, the moon was in love with his sister and stole in the dark to caress her. She, wishing to find out who her lover was, blackened her hands so that the marks might be left on him, which accounts for the spots. The *Khasias* of the Himalaya say that the moon falls in love every month with his mother-in-law, who, like a well-conducted matron, throws ashes in his face.

Comparing these with our familiar myths, we have our own Man in the Moon, who is said to be the culprit found by Moses gathering sticks on the Sabbath, although his place of banishment is a popular addition to the Scripture narrative. According to the German legend he was a scoffer who did the same heinous offense on a Sunday, and was given the alternative of being scorched in the sun or frozen in the moon. The Frisians say that he stole cabbages, the load of which he bears on his back. In Icelandic myth the two children familiar to us as Jack and Jill were kidnaped by the moon, and there they stand to this day with bucket on pole across their shoulders, falling away one after the other as the moon wanes,—a phase described in the couplet:

Jack fell down and broke his crown,
And Jill came tumbling after.

Mr. Baring Gould, whose essay on this subject in his "Curious Myths of the Middle Ages" gives a convenient summary of current legends, contends that Jack and Jill are the *Hjuki* and *Bil* of the *Edda*, and signify the waxing and waning of the moon, their bucket indicating the dependence of rainfall on her phases,—a superstition extant among us yet.

Poetry has made the man in the moon its theme. Dante calls him *Cain*: Chaucer describes him

Bearing a bush of thorns on his back
Whiche for his theft might clime so ner the
heaven;

and Shakespeare refers to him in "*Midsummer Night's Dream*" and the "*Tempest*."

The group of customs observed

among both barbaric and civilized peoples at the changes of the moon, customs which are meaningless except as relics of lunar worship, will be more fitly referred to when we deal with the passage of mythology into religion, of personifying into deifying.

IV.

THE THEORIES OF CERTAIN COMPARATIVE MYTHOLOGISTS.

MANIFOLD are the phases of Nature; manifold is the life of man; and we must not lend a too willing ear to theories which refer the crude explanations of an unscientific age, when the whole universe is Wonderland, to one source. *Cave hominem unius libri*, says the adage, and we may apply it, not only to the man of one book, but also to the man of one idea, in whom the sense of proportion is lacking, and who sees only that for which he looks. Here such caution is introduced as needful of exercise toward the comparative mythologists who, not content with showing—as abundant evidence warrants—that myth has its germs in the investment of the powers of nature with personal life and consciousness, contend that the great epics of our own and kindred races are, from their broadest features to minute detail, but nature-myths obscured and transformed.

Certain scholars, notably Sir G. W. Cox and Professor de Gubernatis, as interpreters of the myths of the Indo-European peoples, and Dr. Goldziher, as an interpreter of Hebrew myth and cognate forms, maintain that the names given in the mythopœic age to the sun, the moon, and the changing scenery of the heaven as the myriad shades and fleeting forms passed over its face, lost their original signification wholly or partially, and came to be regarded as the names of veritable deities and men, whose actions and adventures are the disguised descriptions of the sweep of the thunder-charged clouds and of the victory of the hero-god over their light-engulfing forces. But it is better to state the theory in the words of its exponents, and for that purpose a couple of extracts from Sir George Cox's "Mythology of the Aryan Nations" will suffice.

"In the spontaneous utterances of thoughts awakened by outward phenomena, we have the source of myths which must be regarded

as primary. But it is obvious that such myths would be produced only so long as the words employed were used in their original meaning. If once the meaning of the word were either in part or wholly forgotten, the creation of a new personality under this name would become inevitable, and the change would be rendered both more certain and more rapid by the very wealth of words which were lavished on the sights and objects which most impressed their imagination. A thousand phrases would be used to describe the action of a beneficent or consuming sun, of the gentle or awful night, of the playful or furious wind; and every word or phrase become the germ of a new story as soon as the mind lost its hold on the original force of the name. Thus, in the polyonymy" (by which term Sir Geo. Cox means the giving of several names to one object) "which was the result of the earliest form of human thought we have the germ of the great epics of later times, and of the countless legends which make up the rich stores of mythical tradition. . . . and the legends so framed constitute the class of secondary myths" (p. 42).

"Henceforth the words which had denoted the sun and moon would denote not merely living things but living persons. . . . Every word would become an attribute, and all ideas, once grouped round a single object, would branch off into distinct personifications. The sun had been the lord of light, the driver of the chariot of the day; he had toiled and labored for the sons of men, and sunk down to rest, after a hard battle, in the evening. But now the lord of light would be Phoibos Apollôn, while Helios would remain enthroned in his fiery chariot, and his toils and labors and death-struggles would be transferred to Herakles. The violet clouds which greet his rising and his setting would now be represented by herds of cows which feed in earthly pastures. There would be other expressions which would still remain as floating phrases, not attached to any definite deities. These would gradually be converted into incidents in the life of heroes, and be woven at length into systematic variations. Finally, these gods and heroes, and the incidents of their mythical career, would receive each 'a local habitation and a name.' These would remain as genuine history when the origin and meaning of the words had been either wholly or in part forgotten" (p. 51).

Such is the "solar myth" theory, the general principles of which are sound enough, but the unqualified application of which has caused recoil in many minds inclined to its acceptance. "We can hardly," as Mr. Matthew Arnold says, "now look up at the sun without having the sensations of a moth," and if occasion has not been given to the adversary to blaspheme, he has been supplied with

ample material for banter and ridicule. Some of the happiest illustrations of this are made by Mr. Foster in his amusing and really informing essay on "Nature Myths in Nursery Rhymes," reprinted in "Leisure Studies," an essay which it seems the immaculate critics took *au sérieux!* With a little exercise of one's invention, given also ability to parody, it will be found that many noted events, as well as the lives of the chief actors in them, yield results comforting to the solar mythologists. Not only the Volsungs and the Iliad, but the story of the Crusades and of the conquest of Mexico; not only Arthur and Baldr, but Cæsar and Bonaparte, may be readily resolved, as Professor Tyndall says we all shall be, "like streaks of morning cloud, into the infinite azure of the past." Dupuis, in his researches into the connection between astronomy and mythology, had suggested that Jesus was the sun, and the twelve apostles the zodiacal signs; and Goldziher, analyzing the records of a remote period, maintains the same concerning Jacob and his twelve sons. M. Senart has satisfied himself that Gautama the Buddha, is a sun-myth. Archbishop Whately, to confound the skeptics, ingeniously disproved the existence of Bonaparte; and a French ecclesiastic has by witty etymological analogies shown that Napoleon is cognate with Apollo, the sun, and his mother Letitia identical with Leto, the mother of Apollo; that his *personnel* of twelve Marshals were the signs of the zodiac, his retreat from Moscow a fiery setting, and his emergence from Elba, to rule for twelve years, and then be banished to St. Helena, the sun rising out of the eastern waters to set in the western ocean after twelve hours' reign in the sky. But upon this solar theory, let us cite what Dr. Tylor, whose soberness of judgment renders him a valuable guide along the zigzag path of human progress, says:—"The close and deep analogies between the life of nature and the life of man have been for ages dwelt upon by poets and philosophers, who, in simile or in argument, have told of light and darkness, of calm and tempest, of birth, growth, change, decay, dissolution, renewal. But no one-sided interpretation can be permitted to absorb into a single theory such endless many-sided correspondences as these. Rash inferences which, on the strength of mere resemblance, derive episodes of myth from episodes of nature, must be regarded with utter mistrust, for the stu-

dent who has no more stringent criterion than this for his myths of sun and sky and dawn, will find them wherever it pleases him to seek them."

The investigations of comparative mythologists, more particularly in this country and Germany, have thrown such valuable light on the history of civilization that it will be instructive to learn what excited the inquiry, on what facts the solar theory rests, and what other facts its supporters overlook.

The researches of Niebuhr and his school into the credibility of early history made manifest that the only authority on which the chroniclers relied was tradition. To them—children of an uncritical age—that tradition was venerable with the lapse of time, and binding as a revelation from the gods. To us the charm and interest of it lie in detecting within it the ancient deposit of a mythopœic period, and in deciphering from it what manner of men they must have been among whom such explanation of the beginnings had credence. And in such an inquiry nothing can be "common or unclean," nothing too trivial or puerile for analysis; for where the most grotesque and impossible are found, there we are nearer to the conditions of which we would know more.

The serious endeavor to get at the fact underlying the fabulous was extended to the great body of mythology which had not been incorporated into history, and the interpretations of which satisfied only those who suggested them. As hinted already, the Greeks had sought out the meaning of their myths, with here and there a glimpse of the truth gained; but this was confined to the philosophers and poets. Euhémeros degraded them into dull chronicle, making Herakles a thief who carried off a crop of oranges; Jove a king crushing rebellion; Atlas an astronomer; Python a freebooter; Æolus a weather-wise seaman, and so on. Plutarch tried to "restore" them, but only defaced them, and after centuries of neglect they were discovered by Lord Bacon to be allegories with a moral. Then Banier and Lempriere emptied out of them what little life Euhémeros had left, and the believers in Hebrew as the original speech of mankind saw in them the fragments of a universal primitive revelation! Even the distinguished scholar, Professor Max Müller, is so upset by the many loathsome and revolting stories in a mythology current in the land of Lykurgos and Solon, that he can account for

them only by assuming "a period of temporary insanity through which the human mind had to pass," and a degradation from lovely metaphor to coarse fact which only a "disease of language" explains. There is, however, no need for assumptions of this or of any other kind, for language itself reveals the origin of myth, and shows it to be in keeping with all that is elsewhere established concerning primitive modes of thinking.

V.

ARYAN MYTHOLOGY.

WE said that language lays bare the mental condition under which myths are formed; in other words, that speech reveals the limitations of thought. It would be a useful corrective of theories concerning the origin of language to which many are yet wedded to show that not only terms for things material and concrete, but also for things immaterial and abstract, are of purely physical origin—that is to say, have been chosen from their analogy to something real. As an example, the several verbs whose relics survive in the substantive verb *to be* had each a distinct physical meaning. "Am," "are," "is," are derived from *as* (in Sanskrit *asu*, "life,") meaning "to breath" or "sit"; "was" and "were" from *vas*, "abide"; and in "be" and "been" (from *bnū*, a Sanskrit cognate with Latin *fu*, Greek *phy*, "to grow") are contained the idea of *growing*. But to follow this would take us from the main business of these papers; enough that, out of manifold combinations of a few inarticulate or unjointed sounds, the larger proportion of which were imitative, have arisen the languages of the world, from the meager stock of words of the unlearned and the savage, to the nobly and expanding vocabularies of educated men.

Passing to the facts upon which the solar theory of myths rests, the following stands foremost. The researches of scholars, notably of the German Bopp and Jacob Grimm, have shown that the languages spoken in Europe by the Keltic, Teutonic, Slavonic, Greek, and Latin races, and in Asia by the Hindus, Persian, and some lesser people, are the common decendants, under modifications through various causes, of one mother-tongue known as the Aryan (from a Sanskrit

word cognate with the root *ar* to plow) a term applied in the Vedas to the dominant occupiers of the soil, the "tillers" in India, who spoke it. The above group of languages is also called the Indo-Germanic, and, with more appropriateness, as roughly defining the races included therein, the Indo-European. Of course, wherever the several branches of the old Aryan family finally settled they mixed more or less with the aboriginal races, whom they conquered. But, making such allowances as this demands, it holds good that people to-day, so unlike in complexion, physique, color of hair, and speech, as the Hindoo and the Icelander, the Russian and the Englishman, the Persian and the German, are the offspring of common ancestors, of whom, although no material relics survive, language remains to attest what considerable advance from primitive savagery they had made. Wave after wave of immigrants, among the earliest being the Kelt, followed one another westward, to wrestle for the fairest lands; so that when, centuries later, the veteran legions of Cæsar crossed swords with the Belgæ in this island, they fought against men remotely kin to themselves both in language and in blood.

Furthermore, the evidence which has yielded this most interesting fact also shows that the old Aryans, before they separated into tribes, each of varying dialect, had a common mythology. This, which had its source, as myth everywhere had, in man's endeavor to interpret the meaning of his surroundings, developed into a deification of the powers of nature, and likewise become the groundwork of traditional history, as well as the source of legend, folk-lore, and folk-tale. So venerable are these last-named in their antiquity, that the nursery stories told in Iceland and in the Tyrol, in the Highlands and in the Deccan, are identical. After allowing for local coloring, and for changes incident to the lapse of time, they are the variants of stories related to children in the Aryan fatherland at a period historically remote, and moreover are told in words which are phonetically akin. Their correspondences, often extending to minor detail, are not explained by any theory of borrowing, for no trace of intercourse between Aryans of the East and West occurs until long after the domiciling of the stories where we find them. Nor did they, with such close resemblances as appear between the German Faithful John, and the Hindu Rama, and

Luxman, and between our own Cinderella, the German Aschenputtal, and the Hindu Sodra Bai, spring native from their respective soils. And there is just that unlikeness in certain detail which might be expected from the different positions and products of the several Aryan lands. They explain, for example, the absence from Scandinavian folk-love of creatures like the elephant, the giant ape and turtle, which figure in Brahmanic beast epic. Now, what is true of the folk-tales applies with added force to the mythologies. In the great epics of the Greeks, the Iliad and Odyssey; of the Norsemen, the Volungs; of the Germans, the Nibelungs; of the English, King Arthur and his Round Table Knights; of the Hindus, the Ramâyanâ and Mahâbhârâtâ; of the Persians, the Shâh Nâmeh; we find similarities of incident and episode which are inexplicable, except upon the theory of a common origin. So far as the names and characteristics of the heroes and heroines are concerned, their phonetic identity reveals that common origin, while their analysis explains their common meaning.

The key to this is the Sanskrit language. In the history of the Indo-European family of speech, it served as the starting-point, because, although not the ancestor, it is the eldest member, and has more than the others preserved its roots and suffixes in a more perfect form. And in the history of Indo-European mythology, it is in the ancient Vedic texts, chiefly the Rig-Veda, that we find the materials for comparative study, since in these venerable hymns of a Bible older than our own are preserved the earliest extant forms of Aryan myth.

The method adopted was to compare a number of the Greek names of gods and heroes of somewhat obscure meaning with names of Vedic deities whose meaning is clear. The phonetic relationship between the two sets of names, hidden as it is by the interchange of sounds, is proved by the law which governs such interchange or "permutation of consonants," known, after its discoverer, as "Grimm's law." The causes of this are not easy to ascertain, but they are referable to physical influences, as climate and conditions of life, which in the course of time bring about changes in the organs of speech—such, for example, as make *th* so difficult of pronunciation to a German, in whose language *d* takes its place, as *drei* for *three*, *durstig* for *thirsty*, *dein* for *thine*, etc. We may note tendencies to variation in children of the same house-

hold, their prattle often affording striking illustration of Grimm's law, and it is easy to see that among semi-civilized and isolated tribes, where no check upon the variations is imposed, they would tend to become fixed and give rise to new dialects.

The method has been justified by its works. The familiar myth of the birth of Athênê gives a good illustration of this. She is said to have been the daughter of Zeus, and to have sprung from his forehead. Now the Greek *Zeus*, the Latin *Deus* (whence the French *Dieu* and our *deity*), the Lithuanian *dievas*, and the Sanskrit *Dyaus*, all come from an old Aryan root *div*, or *dyu*, meaning "to shine." The Sanskrit *dyu*, as a noun, means "sky" or "day," and in the Veda, *Dyaus* is the bright sky or heaven. Athênê is the Sanskrit Atanâ, one of the many Vedic names for the dawn. Thus the primitive meaning of the myth comes out; the dawn springs from the forehead of the sky; the daybreak appears rising from the East. But the Greek, in whose Pantheon Zeus had been exalted as god of gods, did not dream that to his remote ancestor that god was but the sky personified and deified; even his philosopher had traced it to the root *zeu*, "to live," and forever lost the track.

Ouranos, or Uranus, is the Vedic Varuna, the all-surrounding heaven, from a root *var*, to veil or cover; Helen, stolen by Paris (in Sans. *Pani*, "the deceiver") from Sparta, is the Vedic Saramâ, the dawn, from the root, *sar*, to creep; the Charites, or Graces, are the Harits, or bright courses of the sun, from *ghar*, to shine, whence the idea of splendor in its transfer to the fair women who attended Aphrodite; the Erinyes, or Furies, are the Saranyû, or dawn, which brings evil deeds to light. Hence, they who did this became regarded as avengers, whose fury pursued the wrong-doer.

These comparisons might be followed throughout the whole range of classic as well as of Teutonic and other epic with the like result. They apply equally to the mythical phrases in which the adventures and general career of the gods and heroes are narrated, for the details of which my readers are referred to such works as Sir G. W. Cox's "Mythology of the Aryan Nations" and "Tales of Ancient Greece." That these majestic epics have one and all their germs in the phenomena of the natural world and the course of the day and year, seems to me demonstrated. But when the solar mythologists contend that "there is absolute

ly nothing left for further analysis in the stories," that every incident has its birth in the journey of the sun, the death of the dawn, the theft of the twilight by the powers of darkness, we rebel against so sweeping an application of the theory. They are nature-myths, but they are much more than that; the impetus that has shaped them as we now know them came from other forces than clouds and storms, and it is with these that our next paper must be concerned.

VI.

THE PRIMITIVE-NATURE MYTH TRANSFORMED.

IN a former paper, the facts on which the solar theory rests were summarized as witnessing to its inherent soundness, and we must now glance at certain other facts which are overlooked by its exponents. A needful task; because the claims preferred on its behalf to explain every incident in the complex mythology of the Greek and other races has caused a recoil in minds otherwise well disposed toward it. In fact, any one reading, without such caution as this paper is designed to supply, the minute analyses of myths in the writings of those who interpret them solely by the philological method, would conclude that it had laid bare the meteorological origin of every epic and folk-tale among the Indo-European peoples. He would learn that in a way rudely analogous to the supernatural guidance of the Christian Church, the several Aryan tribes had received from the fathers of the race an unvarying canon of interpretation of the primitive myths, a canon preserved with the jealous veneration with which the Jew regarded the Thorah and the Brahman the Veda. He would also learn that the details of Norse and classic myth can be traced to the Veda, that these details, not of incident alone, but of thought and expression, survived unimpaired by time and untouched by circumstance, while, strange to say, the more prominent names and the leading characters became obscured in their meaning. Strange indeed, but not true. For what is the fact?

Long before the hymns of the Rig-Veda existed as we know them (and they have remained an inviolate sacred text since 600 B.C., when every word, verse, and syllable were counted), the Aryan tribes had swarmed from their parent hive across boundless steppes and over wind-

ing mountain passes, some westward into Europe, others southward into Hindustan. Among the slender intellectual capital of which they stood possessed was the common mythology of their ancestors, in which, as we have seen, sun and moon, storm and thunder-cloud, and all other natural phenomena, were credited with personal life and will. But that mythology had certainly advanced beyond the crude primitive form and entered the heroic stage, wherein the powers of nature were half human, half divine. Their language had passed into the inflective, or highest stage, and had undergone such changes that the relationship between its several groups and their origin from one mother-tongue were obscured and remained so until laid bare in our day. In short, the Aryan tribes had attained no mean state of civilization, some being more advanced than the others, according as external circumstances helped or hindered, and, one by one, they passed from the condition of semi-civilized nomads to become fathers and founders of nations that abide to this day.

These being the facts to which language itself bears witness, how was it possible for their mythologies, *i.e.*, their stock of notions about things, to remain unaffected and secure of transmission without organic change? The myths, unfixed in literary form, yielded themselves with ease as vehicles of new ideas; their ancient meaning, already faded, paled before the all-absorbing significance of present facts. These were more potent realities than the kisses of the dawn; the human and the personal, in its struggles of mightier interest than the battle of rosy morn or purple eve with the sons of thunder; and Homer's music would long since have died away were Achilles' "baneful wrath" but a passively told tale of the sun's grief for the loss of the morning.

In brief, the complex and varying influences which have transformed the primitive myth, are the important factors which the solar theorists have omitted in their attempted solution of the problem. They have forgotten the part which, to borrow a term from astronomy, "personal equation" has played. They have not examined myth in the light of the history of the race; and the new elements which it took into itself, while never wholly ridding itself of the old, have escaped them. They have secured a mechanical unity whereas, by combination of the historical with their own method, they might have secured a vital unity.

To all which classic myth itself bears record. The Greeks were of Aryan stock, but when they arrived in Europe is unknown. The period between their settlement and the Homeric age was, however, long enough to admit of their advance to the state of a nation rejoicing in the fulness of intellectual life. They remembered not from what rock they were hewn, from what pit they were digged. The nature-gods of their remote ancestors had long since changed their meteorological character and appeared in the likeness of men—or, at least played very human pranks on Olympus. In the Veda, the primitive-nature myth, although exalted and purified, is persistent; under one name or another it is still the ceaseless battle between the darkness and the light; Dyaus was still the bright sky, the cattle of Siva were still the clouds. But the Greek of Homer's time and his congener in the far north, had forgotten all that; the war in heaven was transferred to the strife of gods and men on the shores of the Hellespont and by the bleak seaboard of the Baltic. Their gods and goddesses, improved by age and experience, put off their physical and put on the ethical; the Heaven-father became king of gods and men, source of order, law and justice; the sun and the dawn, Apollo and Athênê, became wisdom, skill, and guardianship incarnate. And the story of human vicissitudes found in solar myth that "pattern of things in the heavens" which conformed to its design. Thus Homer, in whose day the old nature-myth had become confused with the vague traditions of veritable deeds of kings and heroes but dimly remembered, touched it as with heavenly fire unquenchable. The siege of Troy, so say the solar mythologists, "is a repetition of the daily siege of the east by the solar powers that every evening are robbed of their highest treasures in the west." It is surely with a truer instinct that while we contend for that physical origin of the great epics to which their remarkable agreement witnesses, we also feel that the vitality which inheres in them is due to whatever of human experience, joy, and sorrow are the burden of their immortal song. As to the repulsive features of Greek myth, one can neither share the distress of the solar theorists nor feel their difficulties. Both are self-created, and are aggravated by the assumption of "periods of temporary insanity through which the human mind had to pass," as the rude health of childhood is checked

by whooping-cough and measles. They are explained by the persistence with which the lower out of which man has emerged asserts itself, as primary rocks pierce through and overlap later strata. The ancestors of the Aryans were savages in the remote past, and the "old Adam" was never entirely cast out; indeed, it is with us still. There are superstitions and credulities in our midst, in drawing-rooms as well as gypsy camps, quite as gross in nature, if less coarse in guise, as those extant among the Greeks. The future historian of our time, as he turns over the piles of our newspapers, will find contrasts of ignorance and culture in our midst as startling as any existing in the land of Homer, of Archimedes, and Aristotle. Spirit-rapping and belief in the "evil eye" have their cult among us, although Professor Huxley's "Hume" can be bought for two shillings, and knowledge has free course. And it certainly accords best with all that we have learnt as to the mode of human progress to believe that the old lived into the new, than that the old had been cast out, but had gained re-entry, making the last state of the Greeks to be worse than the first.

In this matter the Vedic hymns do not help us much. They are the products of a relatively highly-civilized time; the conception of sky and dawn as living persons has passed out of its primitive simplicity; these heavenly powers have become complex deities; there is much confounding of persons—the same god called by one or many names. The thought is that of an age when moral problems have presented themselves for solution and the references to social matters indicate a settled state of things far removed from the fisher and the hunter stage. Nevertheless, there lurk within these sacred writings survivals of the lower culture, traces of coarse rites, bloody sacrifices, of repulsive myths of the gods, and of cosmogonies familiar to the student of barbaric myth and legend.

Enough has been said to show that the extreme and one-sided interpretations of the solar theorists are due to a one-sided method. The philological method has yielded splendid results; this they have done; the historical yields results equally rich and fertile; this they have left undone. Language has given us the key to the kinship between the several members of the great body of Aryan myths; the study of the historical evolution of myths, the comparison of these, without

regard to affinity of speech, will give us the key to the kinship between savage interpretation of phenomena all the world over. The mythology of Greek and Bushman, of Kaffir and Scandinavian, of the Red Man and the Hindu, springs from the like mental condition. It is the uniform and necessary product of the human mind in the childhood of the race.

VII.

THE STARS IN MYTHOLOGY.

“REVENONS à nos moutons,” as the impatient client who had lost some sheep reminded his rambling advocate.

In the great body of nature-myth, the stars are prominent members. In their multitude; their sublime repose in upper calms above the turmoil of the elements; their varying brilliancy, “one star differing from another star in glory”; their tremulous light; their scattered positions, which lend themselves to every vagary of the constellation maker; their slow procession, varied only by sweeping comet and meteor, or falling showers of shooting stars; they lead the imagination into gentler ways than do the vaster bodies of the most ancient heavens. Nor, although we may compute their number, weigh their volume, in a few instances reckon their distance, and, capturing the light that has come beating through space for unnumbered years, make it reveal the secret of their structure, is the imagination less moved by the clear heavens at night, or the feeling of awe and reverence blunted before that “mighty sum of things forever speaking.”

In barbaric myth the stars are spoken of as the children of the sun and moon, but more often as men who have lived on the earth, translated without seeing death. The single stars are individual chiefs or heroes; the constellations are groups of men or animals. To the natives of Australia the brilliant Jupiter is a chief among the others, and the stars in Orion's belt and scabbard are young men dancing a corroboree, the Pleiades being girls playing to them. The Kasirs of Bengal say that the stars are men who climbed to the top of a tree, and were left in the branches by the trunk being cut away. To the Eskimos the stars in Orion are seal-hunters who have missed their way home; and in German folk-lore they are spoken of as the mowers, because, as Grimm says,

“they stand in a row, like mowers in a meadow.” In North American myth two of the bright stars are twins who have left a home where they were harshly treated, and leaped into the sky, whither their parents followed them, and ceaselessly chase them. In Greek myth the faintest star of the seven Pleiades is Merope, whose light was dimmed because she alone among her sisters married a mortal. In German star-lore, the small star just above the middle one in the shaft of Charles's Wain, is a wagoner who, having given our Saviour a lift, was offered the kingdom of heaven for his reward, but who said he would sooner be driving from east to west to all eternity, and whose desire was granted—a curious contrast to the legend of the Wandering Jew, cursed to move unresting over the earth till the day of judgment, because he refused to let Jesus, weary with the weight of the cross, rest for a moment on his doorstep. The Housatonic Indians say that the stars in Charles's Wain are men hunting a bear, and that the chase lasts from spring to autumn, when the bear is wounded, and its dripping blood turns the leaves of the trees red. With this may be cited the myth that the red clouds at morn and eve are the blood of the slain in battle. In the Northern Lights, the Greenlanders see the spirits of the departed dancing, the brighter the flashes of the Aurora the greater the merriment; while the Dacotahs say of the meteors that they are spirits flying through the air.

Of the Milky Way—so called because Hêrê, indignant at the bantling Heraklê's being put to her breast, spilt her milk along the sky (the solar mythologers say that the “red cow of evening passes during the night across the sky, scattering her milk”); the Ottowas say that it was caused by a turtle swimming along the bottom of the sky, and stirring up the mud. According to the Patagonians, it is the track along which the departed tribesmen hunt ostriches; in African myth it is some wood-ashes long ago thrown up into the sky by a girl, that her people might be able to see their way home at night; in Eastern myth, it is chaff dropped by a thief in his hurried flight.

But the idea of a land beyond the sky—be it the happy hunting-ground of the Indian, or the paradise of Islam, or the new Jerusalem of the Apocalypse—would not fail to be imagined, and in both the Milky Way and the Rainbow barbaric fancy sees the ladders and bridges whereby the departed pass from earth to heaven. So we

find in the lower and higher culture alike the beautiful conceptions of the *chemin des ames*, the Red man's road of the dead to their home in the sun; the ancient Roman path of, or to, the gods; the road of the birds, in Lithuanian myth, because the winged spirits flit thither to the free and happy land. In prosaic contrast to all this, it is curious to find among ourselves the Milky Way described as Watling Street! That famous road, which ran from Richborough through Canterbury and London to Chester, now gives its name to a narrow, bustling street of Manchester warehousemen in the City. But who the Wætlingas were, and why their name was transferred from Britain to the sky,* we do not know, although the fact is plainly enough set down in old writers, foremost among whom is Chaucer. In his "House of Fame" † he says:—

"Lo, there, quod he, cast up thine eye,
se yonder, to, the galaxie,
the whiche men clepe the Milky Way,
for it is white, and some parfay
ycallin it han Watlingestrete."

To the savage, the rainbow is a living monster, a serpent seeking whom it may devour, coming to earth to slake its unquenched thirst, and preying on the unwary. But in more poetic myth, its mighty mani-colored arch touching, as it seems to do, the earth itself, is a road to glory. In the Edda it is the three-colored bridge Bifroset, the "quivering track" over which the gods walk, and of which the red is fire, so that the Frost-giants may not cross it. In Persian myth it is Chinvad, the "bridge of the gatherer," flung across the gloomy depths between this world and the home of the blessed; in Islam it is El-Sirat, the bridge thin as a hair and sharp as a scimitar, stretching from this world to the next; among the Greeks it was Iris, the messenger from Zeus to men, charged with tidings of war and tempest; to the Finns it was the bow of Tiernes, the god of thunder; whilst to the Jew it was the messenger of grace from the Eternal, who did set "his bow in the clouds" as the promise that never again should the world be destroyed by flood. Such belief in the heavens as the field of activities profoundly affecting the fortunes of mankind, and in the stars as influencing their destinies, has been persistent in the human mind. The delusions of the

astrologer are embalmed in language, as when, forgetful of a belief shared not only by sober theologians, but by Tycho Brahe and Kepler, we speak of "disaster," of our friends as "jovial," "saturnine," or "mercurial." But the illusions of the savage or semi-civilized abide as an animating part of many a faith, undisturbed by a science which has swept the skies and found no angels there, and whose keen analysis separates forever the ancient belief in a connection between the planets and man's fate. For convenience's sake, we retain on our celestial maps and globes the men and monsters pictured by barbaric fancy in the star-positions and clusters noting these as interesting examples of survival. Yet we are the willing dupes of illusions nebulous as these, and, charm he never so wisely, the Time-Spirit fails to disenchant us.

If the sun and moon are the parents of the stars, the heavens and the earth are the parents of all living things. Of this widely-found myth, one of the most striking specimens occurs among the Maoris. From Rangî, the heaven, and Papa, the earth, sprang all living things; but earth and sky clave together, and darkness rested on them and their children, who debated whether they should rend them asunder or slay them. Then Tanemahuta, father of forests, reasoned that it was better to rend them so that the heaven might become a stranger, and the earth remain as their nursing-mother. One after another they strove to do this, but in vain, until Tanemahuta, with giant strength and strain, pressed down the earth and thrust upward the heaven. But one of his brothers, father of wind and storm, who had not agreed to this parting of his parents followed Rangî into the sky, and thence sent forth his progeny, "the mighty winds, the fierce squalls, the clouds dense and dark, wildly drifting, wildly hunting," himself rushing on his foe, snapping the huge trees that barred his path, and strewing their trunks and branches on the ground, while the sea was lashed into high-crested waves, and all the creatures therein affrighted. The fish darted hither and thither, but the reptiles fled into the forests, causing quarrel between Tangaron, the ocean-god, and Tane-mahuta for giving them shelter. So the brothers fought, the ocean-god wrecking the canoes and sweeping houses and trees beneath the waters, and had not Papa hidden the gods of the tilled food and the wild within her bosom, they would have perished. Wars of revenge

* Perhaps the converse is true; if the name was a totem which the family adopted, and which was given, as tribute to an important clan, to one of the main roads of this island.

† II., 427.

followed quickly one upon the other; the storm-god's anger was not soon appeased; so that the devastation of the earth was well-nigh complete. But, at last, light arose, and quiet ensued, and the dry land appeared. Rangi and Papa, parted for ever, quarreled no more, but helped the one the other, and "man stood erect and unbroken on his mother Earth."

VIII.

MYTHS OF THE DESTRUCTIVE FORCES OF NATURE.

THE beliefs of the ancient Finns in the world as a divided egg, of which the white is the ocean, the yolk the earth, and the arched shell the sky, and of the Polynesians that the universe is the hollow of a vast cocoanut shell, at the tapering bottom of which is the root of all things, are to us so grotesque that it is not easy to regard them as explanations seriously invented by the human mind. Yet these, together with the notions of the two halves of the shell of Brahma's egg, and of the two calabashes which form the heaven and the earth in African myth, find their correspondences in the wide-spread conception of the over-arching firmament as a hard and solid thing,* with holes (or windows †) to let the rain through, with gates through which angels descend, ‡ or through which prophets peer into celestial mysteries; § a firmament outside which other people live, as instanced by the Polynesian term for strangers, "papalangi," or "heaven-bursters."

They are the less refined forms of myths which have held their ground from pre-scientific times till now, and the rude analogies of which are justified by the appearances of things as presented by the senses. Man's intellectual history is the history of his escape from the illusions of the senses, it is the slow and often reluctant discovery that nature is quite other than that which it seems to be. And this variance between appearances and realities remained hidden until the intellect challenged the report about phenom-

* "And said the gods, let there be a hammered plate in the midst of the waters, and let it be dividing between waters and waters." Gen. i. 6. The verb from which the substantive is derived signifies, among other meanings, "to beat out into thin plates."

† Gen. viii. 2.
‡ Ezekiel i. 2.

§ Gen. xxviii. 17.

ena which the sense-perceptions brought. For in the ages when feeling was dominant, and the judgment scarce awakened, the simple explanations in venerable legends sung by bard or told by aged crone—legends to which age had given sanctity which finally placed them among the world's sacred literatures—were received without doubt or question. But, as belief in causality spread, men were not content to rest in the naïve explanations of an uncritical age. What man had guessed about nature gave place to what nature had to say about herself, and with the classifying of experience science had its birth.

Meanwhile, until this quite recent stage in man's progress was reached, the senses told their blundering tale of an earth flat and fixed, with sun, moon, and stars as its ministering servants, while gods or beasts upbore it, and mighty pillars supported the massive firmament. In Hindoo myth the tortoise which upholds the earth rests upon an elephant, whose legs *reach all the way down!* In Bogotà the culture-god Bochica punishes a lesser and offending deity by compelling him to sustain the part of Atlas, and it is in shifting his burden from shoulder to shoulder that earthquakes are caused. The natives of Celebes say that they are due to the world-supporting Hog as he rubs himself against a tree; the Thascaltecs that they occur when the deities who hold up the world relieve one another; the Japanese think that they are caused by huge whales creeping underground, an idea probably confirmed by the discovery of monster fossil bones.

As the myths about earth-bearers prevail in the regions of earthquakes, so do those about subterranean beings in the neighborhood of volcanoes. The superstitions which mountainous countries especially foster are intensified when the mountains themselves cast forth their awful and devastating progeny, "red ruin" and the other children born of them. Man in his dread, "caring in no wise for the external world, except as it influenced his own destiny; honoring the lightning because it could strike him, the sea because it could drown him,"* could do naught else than people them with maleficent beings, and conceive of their sulphur-exhaling mouths as the jaws of a bottomless pit.

Indeed, if in freeing ourselves from the tyranny of the "solar" theory we

* "Modern Painters," Vol. III., 154.

shackled ourselves with some other, we should certainly prefer that which is known as the "meteorological," and which, in the person of Kuhn and other supporters, finds a more rational and persistent source of myth in phenomena which are fitful and startling, such as hurricane and tempest, earthquake and volcanic outburst. Sunrises and sunsets happen with a regularity which failed to excite any strong emotion or stimulate curiosity, and the remotest ancestor of the primitive Aryan soon shook off the habit—if, indeed, he ever acquired it—of going to bed in fear and trembling lest the sun should not come back again. Nature, in her softer aspects and her gracious bounties—in the spring-time with its promise, the summer with its glory, the autumn with its gifts—has moved the heart of man to song and festival and procession; as, by contrast, the frost that nipped the early buds and the fierce heat that withered the approaching harvest gave occasion for plaintive ditty and somber ceremony. It is in the fierce play and passionate outburst of the elements, in the storm, the lightning, and the thunder, that the feelings are aroused and that the terror-stricken fancy sees the strife of wrathful deities or depicts their dire work among men. Hence, all the world over, the Storm-God and the Wind-God have played a mighty part.

To the savage, the wind, blowing as it listeth, its whence and whither unknown, itself invisible, yet the sweep and force of its power manifest and felt, must have ranked among the most striking phenomena. And, as will be seen hereafter, the correspondences between wind and breath and the connection between breath and life, added their quota of mystery in man's effort to account for the impalpable element. In the legends of the Quiches, the mysterious creative power is Hurakan (whence *hurricane*); among the Choc-taws the original word for Deity is Hush-toli, the storm wind, and in Peru to kiss the air was the commonest and simplest sign of adoration to the collective divinities. The Guayacuans of South America, when a storm arose and there was much thunder or wind, all went out in troops, as it were to battle, shaking their clubs in the air, shooting flights of arrows in that direction whence the storm came.* But we are some steps nearer to the primitive myth when we find the wind conceived of as a mighty bird—which, in-

deed, is in both old and new world mythology a common symbol of thunder and lightning also. On this matter Dr. Brinton's remarks bear quoting:—

Like the wind, the bird sweeps through the aerial spaces, sings in the forests, and rustles on its course; like the cloud, it floats in mid-air, and casts its shadow on the earth; like the lightning, it darts from heaven to earth to strike its unsuspecting prey. These tropes were truths to savage nations, and led on by that law of language which forced them to conceive everything as animate or inanimate, itself the product of a deeper law of thought which urges us to ascribe life to whatever has motion, they found no animal so appropriate for their purpose here as the bird. Therefore the Algonkians say that birds always make the winds, that they create the waterspouts, and that the clouds are the spreading and agitation of their wings; the Navajos, that at each cardinal point stands a white swan, who is the spirit of the blasts; so, also, the Dakotas frequently explain the thunder as the sound of the cloud-bird flapping his wings; the lightning as the fire that flashes from his tracks, like the sparks which the buffalo scatters when he scours over a stony plain.

Turning to the literatures of higher races, we find in the prose Edda, when Gangler asks whence comes the wind, that Har answers him: "Thou must know that at the northernmost point in the heavens sits a giant,

"In the guise of an eagle;
And the winds, it is said,
Rush down on the earth
From his outspreading pinions."

In the Veda, the Maruts, or Storm-gods, to whom many of the hymns are addressed, "make the rocks to tremble and tear asunder the kings of the forest," like Hermes in his violence and like Boreas in his rage. Whether or no they become in Scandinavian legend the grim and fearful Ogres swiftly sailing in their cloudships, we may see in them the "crushers" and "grinders,"* as their name imports, the types of northern deities like Odin, long degraded into the Wild Huntsman and his phantom crew, whose uncouth yells the peasant hears in the midnight air.

Of this personification of the elements, the following Ojibway folk-tale, cited by Dorman, gives poetic illustration:—
"There were spirits from all parts of the country. Some came with crashing steps

* From Sans. *mar*, "to grind." Ares and Mars come from the same root.

* Dorman's "Primitive Superstitions," p. 350.

and roaring voice, who directed the whirlwinds which were in the habit of raging about the neighboring country. Then glided in gently a sweet little spirit, which blew the summer gale. Then came in the old sand-spirit, who blew the sand-squalls in the sand-buttles toward the west. He was a great speech-maker, and shook the lodge with his deep-throated voice, as he addressed the spirits of the cataracts and waterfalls, and those of the islands who wore beautiful green blankets."

In his valuable book on the Myths of the Red Race, Dr. Brinton has brought together a mass of evidence in support of a theory that the sanctity in which the number Four is held among that people is due to the adoration of the cardinal points, which are identified with the four winds, who, in hero myths, are the four ancestors of the human race. Certainly the illustrations with which the argument is supported are both numerous and valuable; but any elaborate system of mythology based upon a definite number of winds has, like the solar theory, to make the facts square with it, and while it explains much, to leave much unexplained. Here this bare reference to it must suffice.

Estimates differ much as to the size of the Thunder-Bird. In one tradition, an Indian found its nest, and secured a feather which was above two hundred feet long, while in another tradition the bird is said to be no bigger than one's little finger! But among the Western Indians he is an immense eagle. "When this aerial monster flaps his wings, loud peals of thunder roll over the prairie; when he winks his eye it lightens; when he wags his tail the waters of the lake which he carries on his back overflow and produce rain." The old and universal belief that stones were hurled by the Thunder-God is not so far-fetched as we, in our pride of science, might think, for the flints which are mistaken for thunderbolts, and which become objects of adoration as well as charms, produce a flash when struck by the lightning. Mixcoatl, the Mexican Cloud-serpent, as well as Jove, carries his bundle of arrows or thunderbolts, which in the hand of Thor are represented by his mighty club or hammer.

As in the conflict raging in the sky during gale or tempest, when the light and the darkness alternately prevail, the barbaric mind sees war waged between the heroes of the spirit-land who have car-

ried their unsettled blood-feuds thither. So in many myths the lightning is no comrade of the thunder, but its foe, the battle of bird with serpent. The resemblances of the lightning flash to the sharp, sudden, zigzag movements of a creature so mysterious, to barbaric man, in its unlikeness to the beasts of the field, account for the myth, the interest of which lies for us in the correspondences which it suggests with the group of storm-myths and sun-myths of the Aryan race, the battle between Indra and Vritra, Ormuzd and Ahriman, Thor and Midgard, Hercules and Cacus, Apollo and Python, and St. George and the Dragon. It is with the physical origin and, for us, deep theological significance of these, that the succeeding paper will deal.

IX.

THE HINDU SUN-AND-CLOUD MYTH.

THESE papers would not be worth the reader's attention if they were solely concerned with bringing together illustrations of myths from semi-savage races. Their other, and indeed their primary, concern is with the origin and growth of man's effort to understand the nature and meaning of things around him, and of his own acts and feelings. In this lies primitive philosophy, theology, and science, the beginnings of all knowledge that has been and that ever will be, and in the unbroken sequence of which we find the explanation of the existence of beliefs among us which are discredited whenever examined. It is the persistence of these which has made it increasingly difficult, as these papers proceed, to deal with the primitive myth apart from its later and more serious forms. Myth was the product of man's emotion and imagination, acted upon by his surroundings, and it carries the traces of its origin in its more developed forms, as the ancestral history of the higher organisms is embodied in their embryos. Man wondered before he reasoned. Awe and fear are quick to express themselves in rudimentary worship; hence the myth was at the outset a theology, and the gradations from personifying to deifying are too faint to be traced. Thus blended, the one as inevitable outcome of the other, they cannot well be treated separately, as if the myth was earth-born and the theology heaven-sent. And to treat them as one is to invade no province of religion,

which is quite other than speculation about gods. The awe and reverence which the fathomless mystery of the universe awakens, which steal within us unbidden as the morning light, and unbroken on the prism of analysis; the conviction, deepening as we peer, that there is a Power beyond humanity, and upon which humanity depends; the feeling that life is in harmony with the Divine order when it moves in disinterested service of our kind—these theology can neither create nor destroy, neither verify nor disprove. They can be bound within no formula that man or church has invented, but undefined—

“Are yet the fountain life of all our day,
Are yet a master light of all our seeing.”

If thus far my readers are with me as to the unrelation between religion and formulated theology, and if these papers have shown with any clearness the emergence of the latter from primitive speculations about the gods and their doings, their sympathetic interest may be reckoned on in what has now to follow concerning the survival of some old weather-myths in beliefs that have had profound and direful influence upon human conduct and fate.

All the Aryan nations have among their legends, often exalted into epic themes, the story of a battle between a hero and a monster. In each case the hero conquers, and releases treasures, or in some way renders succor to man, through his victory. In Hindu myth this battle is fought between Indra and Vritra.

Indra, one of the Vedic gods, comes, according to Professor Max Müller, from the same root as the Sanskrit *indu*, drop, sap, but the etymology is doubtful. What is not doubtful is that he is the god of the bright sky, and, although like the other gods invoked in the hymns of the Rig-Veda, a departmental or tribal deity, a sort of *primus inter pares*, of whose many titles, Vritrahan, or “Vritraslayer,” is the pre-eminent one. The benefits showered by him upon mortals caused the attribution of moral qualities to him, and he was adored as “lord of the virtues,” while the juice of the sacred soma plant was offered in his honor, for which reason he is also called Sompâ, or “soma-drinker.” It is his struggle with Vritra which is a constant theme of the Vedic hymns, the burden of which remind us of the praises offered in the Psalms to Yahweh as a man of war, as mighty in battle. “The

gods do not reach thee, nor man, thou overcomest all creatures in strength. . . . Thou, thunderer, hast shattered with thy bolt the broad and massive cloud into fragments, and hast sent down the waters that were confined in it to flow at will; verily thou alone possessest all power.” The primitive physical meaning of the myth is clear. Indra is the sun-god, armed with spears and arrows, for such did the solar rays appear to barbaric fancy. The rain-clouds are imprisoned in dungeons or caverns by Vritra, the “enveloper,” the thief, serpent, wolf, wild boar as he is severally styled in the Rig-Veda. Indra attacks him, hurls his darts at him; they pierce the cloud-caverns, the waters are released, and drop upon the earth as rain.

Surely a most rational explanation; self-consistent as fitting into crude philosophy of personal life and volition in sun and cloud, and fraught with deep truth of meaning in regions like the Punjaub, where drought brought famine in its train.

The Aryans were a pastoral people, their wealth being in flocks and herds.* The cow yielded milk for the household; her dung fertilized the soil; her young multiplied the wealth of the family at an ever-increasing rate, and she naturally became the symbol of fruitfulness and prosperity, ultimately an object of veneration; while, for the functions which the bull performed, he was the type of strength. The Aryan's enemy was he who stole or injured the cattle; the Aryan's friend was he who saved them from the robber's clutch.

Intellectually, the Aryan tribes were in the mythopœic stage, and the personification of phenomena was rife among them. Their barbaric fancy, as kindred myths all the world over testify, would find ample play in the fleeting and varied scenery of the cloud-fleeced heavens, suggestive, as this would be, of bodies celestial and bodies terrestrial. To these children of the plain the heavens were a vast, wide expanse, over which roamed supramundane beasts, the two most prominent figures in their mythical zoology being the cow and the bull. The sun, giver of blessed light, was the bull of majesty and strength; the white clouds were cows, from whose swelling udders dropped the milk of heaven—the blessed rain. But there were dark clouds also, clouds of night and clouds of storm, and within these lurked the monster rob-

* Both “pecuniary” and “fee” are, as established by Grimm's law, from *pecu*. Lat. *pecu-a*, pl. *pecus*, “cattle”; Sansk. *paçu*, “cattle” from *pac*, to fasten (that which is tied up, i.e., domestic cattle). Cf. Skeats's Etymol. Dict. *in loc.*

ber; into them he lured the herds, and withheld both light and rain from the children of men. To the sun-god, therefore, who smote the thief-dragon, Vritra, with his shaft, and set free the imprisoned cows, went up the shout of praise, the song of gratitude. This myth, as hinted already, survives, in many legends of the Aryan race, and their family likeness is unmistakable. In its Latin guise, it appears as Hercules* and Cacus, although the preciseness of detail narrated by Virgil, Livy, and other writers, has given it quasi-historical rank. Hercules, after his victory over Geryon, stops to rest by the Tiber, and while he is sleeping the three-headed monster, Cacus, steals some of his cattle, dragging them by their tails into his cavern in Mons Avertinus. Their bellowing awakens Hercules, who attacks the cavern, from the mouth of which Cacus vomits flames, and roars as in thunder. But the hero slays him and frees the cattle, a victory which the earlier Romans celebrated with solemn rites at the Ara Maxima. In Greek myth the most familiar examples are the struggles between the sun-god, Apollo, and the storm-dragon, Python, and the deliverance of the Princess Andromeda by Perseus from the sea-monster sent by Poseidon to ravage the land. In the northern group we have the battle of Siegfried with the Niflungs, or Niblungs, and of Sigurd with the dragon of Fafnir, who guards golden treasures; while, in the Eddor, Thor goes fishing with the giant Hymir, and, baiting his hook with a bull's head, catches the great serpent Midgard. Among ourselves, Beowulf, hero of the poem of that name, attacks Grendel, the grim and terrible Jotun that haunts a marsh by the German Ocean (the watery habitat of these monsters is a noticeable common feature), and carries off young and old alike, so that the land is desolated. With mighty grip Beowulf tears him limb from limb, and when, later on, another "winged worm," devourer of fair damsels and hoarder of stolen riches, appears, Beowulf slays him with his enchanted sword.

These brief illustrations would hardly be complete without some reference to our national saint. Opinions differ as to his merits, Gibbon stigmatizing him as a fraudulent army contractor,† while the re-

* Not the same as the Greek Herakles. The similarity of name led the Romans to identify their Hercules, who was a god of boundaries, like Jupiter Terminus, with the Greek hero. Cacus is not cognate with Gr. *kakos*, bad, but was originally *Cacius*, the "blinder" or "darkener."

† "Decline and Fall," vol. iii., c. xxiii., 171. (Smith's Ed.).

searches of M. Ganneau seek to establish his relation to the Egyptian Horus and Typhon. Be this as it may, the stirring old legend tells how George of Cappadocia delivered the city of Silene from a dragon dwelling in a lake hard by. Nothing that the people could give him satisfied his insatiate maw, and in their despair they cast lots who among their dearest ones should be flung to the dread beast. The lot fell to the king's daughter and she went unflinchingly, like Jephthah's daughter, to her fate. But on the road the hero learns her sad errand, and bidding her fear not, he, making sign of the cross, brandishes his lance, attacks and transfixes the dragon, and leading him into Silene, beholds him in sight of all the people, who, with their king, are baptized to the glory of Him who made Saint George the victor.*

While, however, the myth of Indra and Vritra has in its Western variants remained for the most part a battle between heroes and dragons, the moral element rarely or never obscuring the undoubted physical features, it gave rise among the Iranians, or ancient Persians, to a definite theology, the strange fortunes of which have profoundly affected Christendom. How this came about needs another paper to tell.

X.

DEMONOLOGY.

ALTHOUGH in the Vedic hymns the features of the primitive nature-myth re-appear again and again, Indra himself boasting, "I slew Vritra, O Maruts, with might, having grown strong with my own vigor; I who hold the thunderbolt in my arms, I have made these all-brilliant waters to flow freely for man," we find an approach in them to some conception of that spiritual conflict of which the physical conflict was so complete a symbol. Indra, as victor, is an object of adoration and invested with purity and goodness; Vritra, as the enemy of men, is an object of dread, and invested with malice and evil.

But while in the Zend-Avesta, the Scriptures of the old Iranian religion, the struggle between Thraetaona and the three-headed serpent Azhi-Dahaka (in which names are recognizable the Traitana and Ahi of the Veda and the Feri-

* See Ralston's "Russian Folk-Tales," p. 347, for similar Bulgarian legend about St. George.

dum and Zohak of Persian epic) is narrated, the normal idea is dominant throughout. The theme is not the attack of the sun-god to recover stolen milch cows from the dragon's cave, but the battle between Ormuzd, the Spirit of Light, and Ahriman, the Spirit of Darkness. The one seeks to mar the earth which the other has made. Into the fair paradise, Airayana-Vaêjô, "a delightful spot," as the Avesta calls it, "with good waters and trees," and into other smiling lands which Ormuzd has blessed, Ahriman sends "a mighty serpent . . . strong, deadly frost . . . buzzing insects, and poisonous plants. . . toil and poverty," and, worse than all, "the curse of unbelief."* Between these two spiritual powers and their armies of good and bad angels the battle rages for supremacy in the universe for possession of the citadel of Mansoul.

Early in the history of the Aryan tribes there had arisen a quarrel between the Brahminic and Iranian divisions. The latter had become a quiet-loving, agricultural people, while the former remained marauding nomads, attacking and harassing their neighbors. In their plundering inroads they invoked the aid of spells and sacrifices, offering the sacred soma-juice to their gods, and nerving themselves for the fray by deep draughts of the intoxicating stuff. Not only they, but their gods as well, thereby became objects of hatred to the peaceful Iranians, who forswore all worship of freebooters' deities, and transformed these *devas* of the old religion into demons. That religion, as common to the Indo-European race, was polytheistic, a worship of deities each ruling over some department of nature, but a worship exalting now one, now another god, be it Indra, or Varuna, or Agni, according to the indications of the deity's supremacy, or according to the mood of the worshiper. As remarked by Jacob Grimm, "the idea of the devil is foreign to all primitive religions," obviously because in all primitive thought evil and good are alike regarded as the work of deities. In the Old Testament, Yahweh is spoken of as the author of both;† the angels, whether charged with weal or woe, are his messengers. In the "Iliad," Zeus dispenses both:—

"Two urns by Jove's high throne have ever stood.

The source of evil one, the other good;

* Haig's "Essays on the Parsis," tr. Vendidadâd, pp. 225, ff.

† Cf. Isaiah xlv. 7; 1 Kings xxii. 21-23; Amos iii. 6.

From thence the cup of mortal man he fills,
Blessings to these, to those distribute ills,
To most, he mingles both."*

and 'tis a far way from this to the loftier conception of Euripides: "If the gods do evil, then are they no gods." So there was a monotheistic—or, as Prof. Max Müller terms it, a henotheistic—element in the Vedic religion which in the Iranian religion, and this mainly through the teaching of the great thinker and reformer, Zarathushtra (Zoroaster), was largely diffused. In his endeavor to solve the old problem of reconciling sin and misery with Omnipotent goodness, he supposes "two primeval causes," one of which produced the "reality," or good mind; the other the "non-reality," or evil mind. Behind these was developed belief in a philosophical abstraction, "uncreate time," of which each was the product; but such doctrines were too subtle for the popular grasp, and, wrapped in the old mythological garb, they appeared in concrete form as dualism. Vritra survived in Ahriman, who, like him, is represented as a serpent; and in Ormuzd we have the phonetic descendant of Ahura-mazdas.

Now, it was with this dualism, this transformed survival of the sun and cloud myth, that the Jews came into association during their memorable exile in Babylon. Prior to that time, their theology, as hinted above, had no devil in it. But in that belief in spirits which they held in common with all semi-civilized races, as a heritage from barbarous ancestors, there were the elements out of which such a personality might be readily evolved. Their *satân*, or "accuser," as that word means, is no prince of the demons, like the Beelzebub of later times; no dragon, or old serpent, as of the Apocalypse, defying Omnipotence and deceiving the whole world; but a kind of detective who, by direction of Yahweh, has his eye on suspects, and who is sent to test their fidelity. In all his missions he acts as the intelligent and loyal servant of Yahweh. But although therefore not regarded as bad himself the character and functions with which he was credited made easy the transition, from such theories about him to theories of him as inherently evil, as the enemy of goodness, and, therefore, of God. He who, like Vritra, was an object of dread, came to be regarded as the incarnation of evil, the author and abettor of things harmful to man. Persian dualism gave concrete form to this

* "Iliad," Book xxiv. p. 663, ff.

conception, and from the time of the Exile we find Satan as the Jewish Ahri-man, the antagonist of God. Not he alone, for "the angels that kept not their first estate" were the creatures of his evil designs, creatures so numerous that "every one has 10,000 at his right hand and 1000 at his left hand, and because they rule chiefly at night no man should greet another lest he should salute a demon. They haunt lonely spots, often assume the shape of beasts, and it is their presence in the bodies of men and women which is the cause of madness and other diseases."*

From the period when the Apocryphal books, especially those having traces of Persian influence, were written,† this doctrine of an archfiend with his army of demons received increasing impetus. It passed on without check into the Christian religion, and wherever this spread the heathen gods, like the *devas* of Brahminism among the Iranians, were degraded into demons, and swelled the vast crowd of evil spirits let loose to torment and ruin mankind.

This doctrine of demonology, it should be remembered, was but the elaborated form of that ancestral belief in spirits referred to above. In the Christian system it was associated with that belief in magic which has its roots in fetishism, and from the two arose belief in witchcraft. The universal belief in demons in early and mediæval times supplied an easy explanation of disasters and diseases; the sorcerers and charm-workers, the wizards and enchanters, had passed into the service of the devil. For power to work their spite and malevolence, they had bartered their souls to him, and sealed the bargain with their blood. It was enough for the ignorant and frightened sufferers to accuse some poor, misshapen, squinting old woman of casting on them the evil eye, or of appearing in the form of a cat, to secure her trial by torture and her condemnation to an unpitied death. The spread of popular terror led to the issue of Papal bulls and to the passing of statutes in England and in other countries against witchcraft, and it was not until late in the eighteenth century that the laws against that imaginary crime were repealed.

There is no sadder chapter in the an-

* Vide my "Jesus of Nazareth," p. 144.

† Notably "Tobit" and "Baruch," and cf. "Book of Wisdom," II. 24, for earliest indications of the belief. The Asmodeus of Tobit iii. 8 and 17, appears to be the Aeshmô dârvô of the Zend-Avesta.

nals of this tearful world, than this ghastly story of witch-finding and witch-burning. Sprenger computes that during the Christian epoch no less than *nine millions* of persons, mostly women of the poorer classes, were burned; victims of the survival into relatively civilized times of an illusion which had its source in primitive thought. It was an illusion which had the authority of Scripture on its side; * the Church had no hesitation concerning it, such men as Luther, Sir Thomas Browne, and Wesley never doubted it, the evidence of the bewitched was supported by honest witnesses, and judges disposed to mercy and humanity had no qualms in passing the dread sentence of the law on the condemned.†

And although it exists not to-day, save in by-places where gross darkness lurks, it was not destroyed by argument, by disproof, by direct assault, but only through the growth of the scientific spirit, before which, like the miasma of the Campagna before the planting of the Eucalyptus, it has dispersed. It could not live in an atmosphere thus purified, an atmosphere charged with belief in unchanging causation, and in a definite order unbroken by caprice or fitfulness, whether in the sweep of a planet or the pulsations of a human heart.

Of course the antecedents of the archfiend himself could not fail to be the subject of curious inquiry in the time when his existence was no matter of doubt. The old theologians scraped together enough material about him from the sacred books of the Jews and Christians to construct an elaborate biography of him; but in this they would seem to have explained too much in certain directions and not enough in others, thus provoking a reaction which ultimately discredited their painful research. Their genealogy of him was carried further back than they intended or desired, for the popular notions credited him with both a mother and grandmother. Their theory of his fall from Heaven gave rise to the droll conception of his lameness and to the legends of which the "devil on two sticks" is a type. Their infusion of foreign element into his nature aided his pictorial presentment in motley form and garb. To Vedic descriptions of Vritra's darkness may perchance be traced his murkiness and blackness; Greek satyr and German forest-sprite his goat-like body,

* Exodus xxii. 18.

† For details of witch trials in this island, cf. Mrs. Lynn Linton's "Witch Stories," *passim*.

his horns, his cloven hoofs, his tail; to Thor his red beard and trident, vulgarized into a pitchfork; to dwarfs and goblins his red cloak and nodding plume; to theories of transformation of men and spirits into animals his manifold metamorphoses, as black cat, wolf, hellhound, and the like.

But his description was his doom; it was by a natural sequence that the legends of mediæval times present him, not, with the Scotch theologians, as a scholar and a swindler, disguising himself as a parson, but as gullible and stupid, as overreaching himself, and as befooled by mortals. And, like the Trolls of Scandinavian folk-lore who burst at sunrise, it needed only the full light thrown upon his origin and development by the researches of comparative mythologists to dissipate this creation of man's fears and fancies into the vaporous atmosphere where he had his birth.

XI.

METEMPSYCHOSIS AND TRANSFORMATION.

THE belief that human beings could change themselves into animals was alluded to in my remarks on witchcraft, but, in view of its large place in the history of illusions, too incidentally, and it is proposed to give it further reference here.

Superstitions which now excite a smile, or which seem beneath notice, were no sudden phenomena, appearing now and again at the beck and call of willful deceivers of their kind. That they survive at all, like organisms, atrophied or degenerate, which have seen "better days," is evidence of remote antiquity and persistence. Every seeming vagary of the mind had serious importance, and answered to some real need of man as a sober attempt to read the riddle of the earth and get to its inmost secret.

So with this belief. It is the outcome of that early thought of man which conceived a common nature and fellowship between himself and brutes, a conception based on rude analogies between his own and other forms of life, as also between himself and things without life, but having motion, be they waterspouts or rivers, trees or clouds, especially these last, when the wind, in violent surging and with howling voice, drove them across the sky. Where he blindly, timidly groped, we

walk as in the light, and with love that casts out fear. Where rough resemblances suggested to him like mental states and actions in man and brute, the science of our time has, under the comparative method, converted the guess into a certainty; not to the confirmation of his conclusions, but to the proof of identity of structure and function, to the demonstrating of a common origin, however now impassable the chasm that separates us from the lower animals.

The belief in man's power to change his form and nature is obviously nearly connected with the widespread doctrine of metempsychosis, or the passing of the soul at death into one or a series of animals, generally types of the dead man's character, as where the timid enter the body of a hare, the gluttonous that of a swine or vulture.

"Fills with fresh energy another form,
And towers an elephant or glides a worm;
Swims as an eagle in the eye of noon;
Or wails a screech-owl to the deaf, cold
moon, [and glare,
Or haunts the brakes where serpents hiss
Or hums, a glittering insect, in the air."

But while in transmigration the soul returns not to the body which it had left, transformation was only for a time, occurring at stated periods, and effected by the will of the transformed, or by the aid of sorcery and magic, or sometimes imposed by the gods as a punishment for impious defiance and sin.

Other causes, less remote, aided the spread of a belief to which the mind was already inclined. Among these were the hallucinations of men who believed themselves changed into beasts, and who, retreating to caves and forests, issued thence howling and foaming, ravaging for blood and slaughter; hallucinations which afflicted not only single persons, as in the case of Nebuchadnezzar, whose milder monomania (he, himself, saying in the famous prize poem:—

"As he ate the unaccustomed food,
It may be wholesome, but it is not good.")

rather resembled that of the daughters of Prætus, who believed themselves cows, but which also spread as virulent epidemic among whole classes. It is related that, in 1600, multitudes were attacked by the disease known as lycanthropy, or wolf-madness (from Greek, *lukos*, a wolf, and *anthropos*, a man), and that they herded and hunted in packs, destroying and eating children, and keeping in their moun-

ain fastnesses a cannibal or devil's Sabbath, like the nocturnal meetings of witches and demons known as the Witches' Sabbath. Hundreds of them were executed on their own confession, but some time elapsed before the frightful epidemic, and the panic which it caused, passed away. Besides such delusions, history down to our own time records instances where a morbid, innate craving for blood, leading sometimes to cannibalism, has shown itself. Mr. Baring-Gould, in his "Book of Werewolves," cites a case from Gall of a Dutch priest who had such a desire to kill and "to see killed that he became chaplain to a regiment for the sake of witnessing the slaughter in battle. But still more ghastly are the notorious cases of Elizabeth, an Hungarian lady of title, who inveigled girls into her castle and murdered them that she might bathe her body in human blood to enhance her beauty; and of the Maréchal de Retz who, cursed with the abnormal desire to murder children, allured them with promises of dainties into his kitchen, and killed them, inhaling the odor of their blood with delight, and then burned their bodies in the huge fireplace in the one room devoted to these horrors. When the deed was done, the Maréchal would lie prostrate with grief "would toss weeping and praying on a bed, or recite fervent prayers and litanies on his knees, only to rise with irresistible craving to repeat the crime."

Such instances as the foregoing, whether of delusion or morbid desire to destroy, are among secondary causes; they may contribute, but they do not create, being inadequate to account for the world-wide existence of transformation myths. The animals which are the supposed subject of these vary with the habitat but are always those which have inspired most dread from their ferocity. In Abyssinia we find the man-hyæna; in South Africa, the man-lion; in India, the man-tiger; in Northern Europe, the man-bear; and in other parts of Europe the man-wolf or were-wolf (from A.-S. *wer*, a man).

Among the many survivals of primitive thought in the Greek mythology, which are the only key to its coarser features, this of belief in transformation occurs, and, indeed, along the whole line of human development it appears and re-appears in forms more or less vivid and tragic. The gods of the South, as of the North, came down in the likeness of beasts and birds, as well as of men, and among the references to these myths in classic writers,

Ovid, in the "Metamorphoses," tells the story of Zeus visiting Lykaon, king of Arcadia, who placed a dish of human flesh before the god to test thereby his omniscience. Zeus detected the trick, and punished the king by changing him into a wolf, so that his desire might be toward the food which he had impiously offered to his god.

"In vain he attempted to speak; from that very instant

His jaws were besplattered with foam, and only he thirsted

For blood, as he raged among flocks and panted for slaughter.

His vesture was changed into hair, his limbs became crooked.

A wolf—he retains yet large traces of his ancient expression,

Hoary he is as afore, his countenance rabid,

His eyes glitter savagely still, the picture of fury."

But we may pass from this and such-like tales of the ancients to the grim realities of the belief in mediæval times.

XII.

TRANSFORMATION IN THE MIDDLE AGES.

THE closing remarks in my last paper made reference to the terribly real form which belief in transformation assumed in the middle ages.

If wolves abounded, much more did the were-wolf abound. According to Olaus Magnus, the sufferings which the inhabitants of Prussia and neighboring nations endured from wolves were trivial compared with the ravages wrought by men turned into wolves. On the feast of the Nativity, these monsters were said to assemble and then disperse in companies to kill and plunder. Attacking lonely houses, they devoured all the human beings and every other animal found therein. "They burst into the beer-cellars and there they empty the tuns of beer or mead, and pile up the empty casks one above another in the middle of the cellar, thus showing their difference from natural wolves." In Scandinavia it was believed that some men had a second skin, out of which they could slip and appear in the shape of a beast. Perhaps the phrase "to jump out of one's skin" is a relic of this notion. The Romans believed that the were-wolf simply effected the change

by turning his skin inside out, hence the term "versipellis," or "skin-changer." So in mediæval times it was said that the wolf's skin was under the human, and the unhappy suspects were hacked and tortured for signs of such hairy growth. Sometimes the change was induced, it is said, by putting on a girdle of human skin round the waist; sometimes by the use of magical ointment. Whatever the animal whose shape a man took could do, that he could do, plus such power as he possessed in virtue of his manhood or acquired by sorcery, his eyes remaining as the only features by which he could be recognized. If he was not changed himself, some charm was wrought on the eyes of onlookers whereby they could see him only in the shape which he was supposed to assume. The genuine monomaniacs aided such an illusion. The poor demented one who conceived himself a dog or a wolf, who barked, and snapped, and foamed at the mouth, and bit savagely at the flesh of others, was soon clothed by a terror-stricken fancy in the skin of either brute, and believed to have the canine or lupine appetite in addition to his human cunning. The imagination thus projects in visible form the specters of its creation; the eye in this, as in so much else, sees the thing for which it looks. Some solid foundation for the belief would, however, exist in the custom among warriors of dressing themselves in the skins of beasts to add to their ferocious appearance. And it was amid such that the remarkable form of mania in Northern Europe known as the Berserkr rage ("bear-sark" or "bear-skin" wearer) arose. Working themselves by the aid of strong drink or drugs and contagious excitement into a frenzy, these freebooters of the Northland sallied forth to break the back bones and cleave the skulls of quiet folk and unwary travelers. As with flashing eyes and foaming mouth they yelled and danced, seemingly endowed with magic power to resist assault by sword or club, they aroused in the hysterically disposed a like madness, which led to terrible crimes, and which died away only as the killing of one's fellows became less the business of life.

During the fifteenth and sixteenth centuries, the belief in men-beasts reached its maximum, and met with no tender treatment at the hands of a Church whose Founder had manifested such soothing pity toward the "possessed" of Galilee and Judæa. That Church had a cut-and-dried explanation

of the whole thing, and applied a sharp and pitiless remedy. If the devil, with countless myrmidons at his command, was "going to and fro in the earth, and walking up and down in it," what limit could be put to his ingenuity and arts? Could he not as easily change a man into a wolf or a bear, as a woman into a cat; and had not each secured this by a compact with him, the foe of God and His Church? The evidence in support of the one was as clear and cogent as in support of the other; hence were-wolf hunting and burning became as Christian a duty and as paying a profession as witch-smelling and torturing. Any cruelty was justified by its perpetrators when the object in view was the vindication of the majesty of God; and not until the advancing intelligence of men recoiled against the popular explanations of witchcraft and lycanthropy were the laws against both repealed.

Those explanations were survivals of savage mental philosophy blended with a crude theology. To the savage, all diseases are the work of evil spirits. If a man hurts himself against a stone, the demon in the stone is the cause. If the man falls suddenly ill, writhes or shrieks in his pain, the spirit which has smuggled itself in with the food or the drink or the breath is twisting or tearing him; if he has a fit, the spirit has flung him; if he is in the frenzy of hysteria, the spirit within him is laughing in fiendish glee. And when the man suddenly loses his reason, goes, as people say, "out of his mind," acts and looks no longer like his former self, still more does this seem the work of an evil agent within him. It is kindred with the old belief that the sickly and ugly infant had been left in the cradle by the witch in place of the child which she had stolen before its baptism.* And the thing to do is to find some mode of conjuring or frightening or forcing the demon out of the man just as it became a sacred duty to watch over the newly born until the sign of the Cross had been made on its forehead, and the regenerating water sprinkled over it.

"Presbyter is but old priest writ large." And the theory of demoniacal agency was but the savage theory in a more elaborate guise. To theologians and jurists it was a sufficing explanation; it fitted in with the current notions of the government of the universe, and there was no

* Spenser says:—
"Such, men do *changelings* call, so changed by
fairies' theft."

need to frame any other. Body and mind were to them as separate entities, as they are to the savage and the ignorant. Each regarded the soul as independent of the body, and framed his theories of occasional absence therefrom accordingly. But science has taught us to know ourselves not as dual, but as one. She lays her finger on the subtle, intricate framework of man's nervous system, and finds in the derangement of this the secret of those delusions and illusions which have been so prolific in agony and suffering. She makes clear how the yielding to morbid tendencies can still foster delusions, which, if no longer the subject of pains and penalties in the body politic, are themselves ministers of vengeance in the body where they arise. And in the recognition of a fundamental unity between the physical and the mental, in the nealhy working of the one as dependent on the wholesome care of the other, she finds not only the remedy against mental derangement and all forms of harmful excitement, but also the prevention which is better than cure.

XIII.

THE BELIEF IN TRANSFORMATION UNIVERSAL.

TRADITIONS of transformation of men into beasts are not confined to the Old World. In Dr. Rink's "Tales of the Eskimo" there are numerous stories both of men and women who have assumed animal form at will, as also incidental references to the belief in stories such as that telling how an Eskimo got inside a walrus skin, so that he might lead the life of that creature. And among the Red Races, that rough analogy which led to the animal being credited with life and consciousness akin to the human, still expresses itself in thought and act. If even now it is matter of popular belief in the wilds of Norway that Finns and Lapps, who from remote times have passed as skillful witches and wizards, can at pleasure assume the shape of bears, the common saying, according to Dr. Dament, about an unusually daring and savage beast being, "that can be no Christian bear," we may not be surprised that lower races still ascribe power of interchange to man and brute. The werewolf superstition is extant among the North-Western Indians, but free from those dia-

bolical features which characterized it in mediæval times among ourselves. It takes its place in barbaric myth generally, and although it may have repellant or cruel elements, it was never blended with belief in the demoniacal. The Ahts say that men go into the mountains to seek their manitou (that is, the personal deity, generally the first animal seen by the native in the dream produced by his fasting on reaching manhood), and, mixing with wolves, are after a time changed into these creatures. Although the illustration bears more upon what has to be said concerning the barbaric belief in animal ancestors, it has some reference to the matter in hand to cite the custom among the Tonkanays, a wild and unruly tribe in Texas, of celebrating their origin by a grand annual dance. One of them, naked as he was born, is buried in the earth, then the others, clothed in wolfskins, walk over him, sniff around him, howl in wolfish style, and then dig him up with their nails. The leading wolf solemnly places a bow and arrow in his hands, and, to his inquiry as to what he must do for a living, advises him "to do as the wolves do—rob, kill, and rove from place to place, never cultivating the soil." Dr. Brinton, in quoting the above from Schoolcraft, refers to a similar custom among the ancient dwellers on Mount Soracte.

As in past times among ourselves, so in times present among races such as the foregoing, their wizards and shamans are believed to have power to turn themselves as they choose into beasts, birds, or reptiles. By whatever name these professional impostors are known, whether as medicine-men, or, as in Cherokee, by the high-sounding title of "possessors of the divine fire," they have traded, and wherever credulity or darkest ignorance abide, still trade, on the fears and fancies of their fellows by disguising themselves in voice and gait and covering as the animal which they pretend to be. Among races believing in transformation such tricks have free course, and the more dexterous the sorcerer who could play bear's antics in a bear's skin proved himself in throwing off the disguise and appearing suddenly as a man, the greater his success, and he more firmly grounded the belief.

The whole subject, although presented here only in the barest outline, would not be fitly dismissed without some reference to the survival of the primitive belief in men-animals in the world-wide stories known as Beast-fables, in which animals act and talk like human beings. When

to us all Nature was wonderland, and among our playfellows were the four-footed, the birds, and the fishes; when in fireside tale and rhyme they spoke our language and lived that free life which we then shared and can never share again, the feeling of kinship to which the old fables gave expression may have checked mady a wanton act, and, if we learned it not fully then, at least have taken the lesson to heart since,

Never to blend our pleasure or our pride
With sorrow of the meanest thing that lives.

And then those "Fables" of Æsop, even with the tedious drawback of the "moral," as powder beneath the jam, did they not lighten for us in school-days the dark passages through our Valpy (for the omniscient Dr. William Smith was not then the tyro's dread), and again give us communion with the fowl of the air and the beast of the field? Now, our mature thought may interest itself in following the beast-myths to the source whence Babrius and Phædrus, knowing not its springhead and antiquity, drew their vivid presentments of the living world, and find in the storied East the wellspring that fed the imagination of youngsters thousands of years ago. With some authorities the Egyptians have the credit of first inventing the beast-fable, but among them, as among every other advanced race, such stories are the remains of an earlier deposit; relics of a primitive philosophy, in which wisdom, and skill, and cunning are no monopoly of man's. The fondness of the negro races, whose traditions are not limited to South and Central Africa, for such fables is well known, as witness the tales of which "Uncle Remus" is a type, and it is strikingly illustrated in the history of the Vai tribe, who having, partly through contact with whites elaborated a system of writing, made the beast-fable their earliest essay in composition.*

In former papers, the evidence in support of the common ancestry of the languages spoken by the leading peoples in Europe, and by such important historical races in Asia as the Hindu and the Persian, has been summarized. That evidence is likewise conclusive, not only as to the origin of the myths on which the great Indo-European epics are founded, but also as to the possession by the several clans of a common stock of folk-lore and folk-tale, in which, of course, the

beast-fable is included, these being the relics in didactic or humorous guise of that serious philosophy concerning the life of man and beast among the barbaric ancestors of the Indo-Europeans, upon which stress enough has been laid.

Even if the common origin could be disproved, the evidence would merely be shifted from local to general foundations, because the uniform attitude of mind before the same phenomena would be proven; but the resemblances are too minute in detail to be explained by a theory of independent creation of the tales where now we find them. The likenesses are many; the unlikenesses are few, being the result of local coloring, historical fact blended with the fiction, popular belief, and superstition, all affected by the skill of the professional storyteller. As in the numerous variants of the familiar Cinderella, Beauty and the Beast, Punchkin, and the like, the same fairy prince or princess, the same wicked magician and clever, versatile Boots peep through, disclosing the near relationship of Hindu nursery tales to the folk-tales of Norway and the Highlands, of Iceland and Ceylon, of Persia and Serbia, of Russia and the lands washed by the Mediterranean. In the venerable collection of "Buddhist Birth Stories," now in course of translation by Dr. Rhys Davids,* and to which he has prefaced an interesting introduction on the source and migration of folk-tales, we are face to face with many a fable familiar to us in the "Æsop" of our school-days. There is the story of the Ass in the Lion's Skin, not in which, as Æsop has it, the beast dressed himself, but which the hawker put on him to frighten the thieves who would steal his goods. Left one day to browse in a field while his master refreshed himself at an inn, some watchmen saw him, and, raising hue and cry, brought out the villagers, armed with their rude implements. The ass, fearing death, made a noise like an ass, and was killed. Long might he, adds the ancient moral.

Clad in a lion's skin
Have fed on the barley green;
But he brayed!
And that moment he came to ruin.

The variants of this old fable are found in mediæval, in French, German, Indian, and Turkish folk-lore, as are also those of the tortoise who lost his life through

* Cf. Mahaffy's "Prolegomena to Ancient History," p. 392.

* Vol. I. Trübner & Co. See also, for some valuable illustrations from early English and other sources, an article by Rev. Dr. Morris, in *Contemp. Rev.*, May, 1881.

"much speaking." Desiring to emigrate, two ducks agreed to carry him, he seizing hold of a stick which they held between their beaks. As they passed over a village, the people shouted and jeered, whereupon the irate tortoise retorted, "What business is it of yours?" and, of course, thereby let go the stick and, falling down, split in two. Therefore

Speak wise words not out of season;
You see how, by talking overmuch,
The tortoise fell."

In *Æsop*, the tortoise asks an eagle to teach him to fly; in Chinese folk-lore he is carried by geese.

Jacob Grimm's researches concerning the famous mediæval fable of "Reynard the Fox," revealed the ancient and scattered materials out of which that wonderful satire was woven, and there is no feature of the story which reappears more often in Eastern and Western folk-lore than that cunning of the animal which has been for the lampooner and the satirist the type of self-seeking monk and ecclesiastic. When Chanticleer proudly takes an airing with his family, he meets master Reynard, who tells him he has become a "religious," and shows him his beads, and his missal, and his hair shirt, adding in a voice "that was child-like and bland," that he had vowed never to eat flesh. Then he went off singing his Credo, and slunk behind a hawthorn. Chanticleer, thus thrown off his guard, continues his airing, and the astute hypocrite, darting from his ambush, seizes the plump hen Coppel. So in Indian folk-tale, a wolf living near the Ganges is cut off from food by the surrounding water. He decides to keep holy day, and the god Sakka, knowing his lupine weakness, resolves to have some fun with him, and turns himself into a wild goat. "Aha!" says the wolf, "I'll keep the fast another day," and springing up he tried to seize the goat, who skipped about so that he couldn't be taken. So *Lupus* gives it up, and says as his solatium: "After all, I've not broken my vow."

The Chinese have a story of a tiger who desired to eat a fox, but the latter claimed exemption as being superior to the other animals, adding that if the tiger doubted his word, he could easily judge for himself. So the two set forth, and, of course, every animal fled at sight of the tiger, who, too stupid to see how he had been gulled, conceived high respect for the fox, and spared his life.

Sometimes the tables are turned.

Chanticleer gets his head out of Reynard's mouth by making him answer the farmer, and in the valuable collection of Hottentot tales which the late Dr. Bleek, with some warrant, called "Reynard in South Africa," the cock makes the jackal say his prayers, and flies off while the outwitted beast folds his hands and shuts his eyes.

But I must forbear quoting further. Enough if it is made clear to the reader that the beast-fable is the lineal descendant of barbaric conceptions of a life shared in common by man and brute, and another link thus added to the lengthening chain of the continuity of human history.

XIV.

BEAST-FABLES.

THE beast-fables cited in my last paper were drawn from widely-severed sources, as illustrative of ideas common to all barbarous races, concerning the community of life in man and brute.

They are thus shown to embalm the relics of a serious philosophy, and the like is true of the great mass of folk-tales of which they are a branch. The connection of the two is, indeed, manifest in the group of which "Beauty and the Beast" is a well-known example, in which the husband or wife is of fair human form by night and a hideous monster by day, until freed from the sorcerer's enchantment. Such tales have not fallen in the East to the low level which they have reached here, because they yet accord in some degree with extant superstitions in India, whereas in Europe they find little or nothing to which they correspond. But, dismissing these, we will deal with a group of stories culled from various collections, the leading idea of which is the dwelling apart of the soul or heart, as the seat of life, from the body, in some secret place, as in an egg, or a necklace, or a flower; the destruction of the soul involving that of the body.

In the Norse tale of "The giant who had no heart in his body," the monster turns six princes and their wives into stone, whereupon the seventh and only surviving son, Boots, sets out to avenge their fate. On his journey he saves the lives of a raven, a salmon, and a wolf, and the wolf, having eaten his horse, compensates Boots by carrying him to the giant's castle, where the lovely princess who is

to be his bride is confined. She promises to find out where the giant keeps his heart, and by blandishments and divers arts known to the fair sex both before and since the time of Delilah, she worms out the secret. He tells her that "far, far, away in a lake lies an island; on that island stands a church; in that church is a well; in that well swims a duck; in that duck is an egg; and in that egg there lies my heart, you darling!" Boots, taking fond farewell of the princess, rides on the wolf's back to the island. Then the raven he had befriended flies to the steeple and fetches the key of the church; the salmon, in like return for kindness, brings him the egg from the well where the duck had dropped it.

Then the wolf told him to squeeze the egg, and as soon as ever he did so, the giant screamed out. "Squeeze it again," said the wolf; and when the prince did so, the giant screamed still more piteously, and begged and prayed so prettily to be spared, saying he would do all that the prince wished if he would only not squeeze his heart in two. "Tell him if he will restore to life again your six brothers and their brides, you will spare his life," said the wolf. Yes, the giant was ready to do that, and he turned the six brothers into kings' sons again, and their brides into kings' daughters. "Now squeeze the egg in two," said the wolf. With questionable morality, doing evil that good might come, Boots squeezed the egg to pieces, and the giant burst at once.

Some interesting variants of this story are given by Mr. Ralston in his "Russian Folk-Tales," in which Koshchei is the counterpart of the giant, his death being brought about by the destruction of the object in which his soul is hidden. In one story he is killed by a blow on the forehead inflicted by the mysterious egg—that last link in the magic chain by which his life is darkly bound. In another version the fatal blow is struck by a small stone found in the yolk of an egg, which is inside a duck, which is inside a hare, which is inside a stone, which is on an island. In another variant, Koshchei attempts to deceive his fair captive, pretending that his "death" resides in a besom, or in a fence, both of which she adorns with gold in token of her love. Then he confesses that his "death" really lies in an egg, inside a duck, inside a log which is floating on the sea. Prince Ivan gets hold of the egg, and shifts it from one hand to the other. Koshchei rushes wildly from side to side of the room. At last the prince breaks the egg, and Koshchei falls on the floor and dies.

In Serbian folk-tale the strength of a baleful being who had stolen a princess lies in a bird which is inside the heart of a fox, and when the bird was taken out of the heart and set on fire, that moment the wife stealer falls down dead, and the prince regains his bride. In Bohemian, Gaelic, Greek, Finnish, as also among the Hottentot and Samoyed folk-tales, the same incident occurs of an external soul, generally hidden in an egg, the breaking of which ends the life of giant or other monster. In the "Arabian Nights" the Jinni's soul is enclosed in the crop of a sparrow, and the sparrow is imprisoned in a small box, and this again in seven other boxes, which are put into seven chests, contained in a coffer of marble, which is sunk in the ocean that surrounds the world. Seyfel-Mulook raises the coffer by the aid of Suleyman's seal-ring, and having extricated the sparrow, strangles it, whereupon the Jinni's body is converted into a heap of black ashes.

The most venerable form in which we possess the myth of a man's soul outside his body comes to us from the valley of the Nile, but before narrating this we must seek in the "storied East" the close parallels to the folk-lore of the Western Aryans. As in the Rig-Veda we are in certain respects nearer to the older forms of the parent language of the Indo-European peoples, so in the folk-tales of Bengal and the Deccan we are nearer the earliest forms of the fireside stories of both east and west.

In the story of "Punchkin" given in Miss Frere's "Old Deccan Days," a Rajah has seven daughters, and his wife dying when they were quite children, he marries the widow of his prime minister. Her cruelty to his children made them run off to a jungle, where seven neighboring princes, who were out hunting, found them, and each took one of them to wife. After a time they again went hunting, and did not come back. So when the son of the youngest princess, who had also been enchanted away, grew up, he set out in search of his mother and father and uncles, and at last discovered that the seven princes had been turned into stone by the magician Punchkin, who had shut up the princess in a tower because she would not marry him. Recognizing her son, she plotted with him to feign agreement to marry Punchkin if he would tell her where the secret of his life was hidden. Overjoyed at her yielding to his wish, the magician told her that it **was** true that he was not as others.

Far, far away, hundreds of thousands of miles from this, there lies a desolate country covered with thick jungle. In the midst of the jungle grows a circle of palm-trees, and in the center of the circle stand six chattees full of water, piled one above another; below the sixth chattee is a small cage which contains a little green parrot; on the life of the parrot depends my life, and if the parrot is killed I must die. But, he added, this was not possible, because thousands of genii "surround the palm-trees, and kill all who approach the place."

The princess told her son this, and he set forth on his journey. On the way he rescued some young eagles from a serpent, and the grateful birds carried him until they reached the jungle, where, the genii being overcome with sleep by the heat, the eaglets swooped down. "Down jumped the prince; in an instant he had overthrown the chattees full of water and seized the parrot, which he rolled up in his cloak," then mounted again into the air and was carried back to Punchkin's palace. Punchkin was dismayed to see the parrot in the prince's hands, and asked him to name any price he willed for it, whereupon the prince demanded the restoration of his father and his uncles to life. This was done; then he insisted on Punchkin doing the like to "all whom he had thus imprisoned," when, at the waving of the magician's wand, the whole garden became suddenly alive.

"Give me my parrot!" cried Punchkin. Then the boy took hold of the parrot, and tore off one of his wings; and as he did so the magician's right arm fell off. He then pulled off the parrot's second wing, and Punchkin's left arm fell off; then he pulled off the bird's legs, and down fell the magician's right leg and left leg. Nothing remained of him save the limbless body and the head; but still he rolled his eyes, and cried, "Give me my parrot!" "Take your parrot, then," cried the boy, and with that he wrung the bird's neck, and threw it at the magician, and as he did so, Punchkin's head twisted round, and, with a fearful groan he died. Of course, all the rest "lived very happily ever afterward," as they do in the plays and the novels.

In the story of "Sodewa Bai," the Hindu Cinderella, the heroine's soul is contained in a string of golden beads, and in the Bengali tale, "Life's Secret," a Rajah's favorite wife gives birth miraculously to a boy, whose soul is bound up in a necklace in the stomach of a boal-fish. In both instances the jewels are stolen, and while they are worn by the

thieves, prince and princess alike are lifeless, while with the recovery of the jewels, life returned to each.

The family likeness of these Indian folk-tales to those given above is explainable on no theory of borrowing, and finds its sole and rational explanation in the possession of a common stock of folklore by the several ancestors of the Indo-European races. As Sir G. W. Cox remarks, "the substantial identity of stories told in Italy, Norway, and India can but prove that the treasure-house of mythology was more abundantly filled before the dispersion of the Aryan tribes than we had taken it to be."

The Egyptian tale of the "Two Brothers" is of great value on account of its high antiquity, and, moreover, specially interesting as recording an incident similar to that narrated in the life of Joseph. It is contained in the d'Orbiney papyrus preserved in the Bibliothèque Impériale, the date being about the fourteenth or fifteenth century B.C.

There were two brothers, Anepou and Satou, joined as one in love and labor. One day Satou was sent to fetch seed-corn from Anepou's house, where he found his brother's wife adorning her hair. She urged him to stay with her, but he refused, promising, however, to keep her wickedness secret. When Anepou returned at even, she, being afraid, "made herself to seem as a woman that had suffered violence," and told him exactly the reverse of what had happened. Anepou's wrath was kindled against Satou, and he went out to slay him; but Satou called on Phra to save him, and the god placed a river between the brothers, so that when day dawned Anepou might hear the truth. At sunrise Satou tells his story, and, mutilating himself, he says that he will leave Anepou and go to the valley of the cedar, in the cones of which he will deposit his heart, "so that if the tree be cut, his heart would fall to the earth, and he must die."

Space forbids further outline of the venerable story, which finally ends with the reconciliation of the two brothers.

For us the value of these folk-tales lies in the relics of barbaric notions concerning the nature of man and his relation to external things which they preserve. They have amused our youthhood: they may instruct our manhood. Not if we go to the solar mythologist for their interpretation. We shall learn from Sir G. W. Cox that "the magician Punchkin and the heartless giant are only other forms

of the Panis who steal bright treasures from the gleaming west," that "Balna herself is Helen shut up in Iliion . . . the eagles the bright clouds,"* and from Professor de Gubernatis that the duck is the dawn and the egg the sun.

These venerable tales have a larger, richer meaning than this, expressive of the wonder deep-seated in the heart of man. Like the beautiful prisms of topaz and beryl revealed when a "drusy" cavity in granitic rock is broken open, they hold within them the crystallized thought of the past. The soul existing apart from the body, whether in bird or casket, and determining its fate, is the relic of barbaric belief in one or more entities *in* the body, yet not *of* it—a belief extant among tribes still uncivilized, and surviving in unsuspected forms among more advanced races.

XV.

TOTEMISM.

IN addition to the beliefs in the transformation of men into animals and in the transmigration of souls into the bodies of animals, we find among barbarous peoples a belief which is probably the parent of one and certainly nearly related to both, namely, in descent from the animal or plant, more often the former, whose name they bear. Its connection with transmigration is seen in the belief of the Moquis, an Indian tribe, that after death they live in the form of their totemic animal, those of the Deer family becoming deer, and so on through the several clans. The belief survives in its most primitive and vivid forms among two races, the aborigines of Australia and the North American Indians. The word "totemism," given to it both in its religious and social aspects, is derived from the Algonquin "dodaim" or "dodhaim," meaning "clanmark." Among the Australians, the word "kobong," meaning "friend" or "protector," is the generic term for the animal or plant by which they are known. It is akin in significance to the Indian words "manitou," "oki," etc., comprehending "the manifestations of the unseen world, yet conveying no sense of personal unity," which are commonly translated by the misleading word "medicine;" hence, "medicine-men."

The family name, or second name borne

by all the tribes in lineal descent, and which corresponds to our surname, *i.e.*, *super nomen*, or "over-name," is derived from names of beasts, birds, etc., around which traditions of their transformation into men linger. Sir Geo. Grey* says that there is a mysterious connection between a native and his kobong. It is his protecting angel, like the "daimon" of Socrates, like the "genius" of the early Italian. "If it is an animal, he will not kill one of the species to which it belongs, should he find it asleep, and he always kills it reluctantly and never without affording it a chance of escape. The family belief is that some one individual of the species is their dearest friend, to kill whom would be a great crime," as, in Hindu belief, when a Rajah was said to have entered at death into the body of a fish, a "close time" was at once decreed. Among the Indian tribes we find well-nigh the whole fauna represented, their totem being the Bear, Turtle, Deer, Hawk, Eagle, Pike, Buffalo, etc. Like the Australians, these tribes regarded themselves as being of the breed of their particular animal-totem, and avoided hunting, slaying and eating (of which more presently) the creature under whose form the ancestor was thought to be manifest. The Chippaways carried their respect even further. Deriving their origin from the dog, they at one time refrained from employing their supposed canine ancestors in dragging their sledges. The Bechuana and other people of South Africa will avoid eating their tribe-animal or wearing its skin. The same prohibitions are found among tribes in Northern Asia, and the Vogulitzis of Siberia, when they have killed a bear, address it formally, maintaining "that the blame is to be laid on the arrows and iron, which were made and forged by the Russians!" Among the Delawares the Tortoise gens claimed supremacy over the others, because their ancestor, who had become a fabled monster in their mythology, bore their world on his back. The Californian Indians are in interesting agreement with Lord Monboddoo when, in claiming descent from the prairie wolf, they account for the loss of their tails by the habit of sitting, which, in course of time, wore them down to the stump! The Kickapoos say their ancestors had tails, and that when they lost them the "impudent fox sent every morning to ask how their tails were, and the bear shook his fat sides at the joke."

* "Mythology of the Aryan Nations," Vol. I., p. 140, n.

* "Travels in N. W. and W. Australia," Vol. II., 220.

The Patagonians are said to have a number of animal deities, creators of the several tribes, some being of the caste of the guanaco, others of the ostrich, etc. In short, the group of beliefs and practices found among races in the lower stages of culture point to a widespread common attitude toward the mystery of life around them. In speaking of totemism among the Red Races, Dr. Brinton thinks that the free use of animate symbols to express abstract ideas, which he finds so frequent, is the source of a confusion which has led to their claiming literal descent from wild beasts. But the barbaric mind bristles with contradictions and mutually destructive conceptions; nothing is too wonderful, too *bizarre* for its acceptance, and the belief in actual animal descent is not the most remarkable or far-fetched among the articles of its creed.

The subject of totemism is full of interest both on its religious and social side:—

On its religious side it has given rise, or, if this be not conceded, impetus, to that worship of animals which assuredly had its source in the attribution of mysterious power through some spirit within them, making them deity incarnate.

On its social side it has led to prohibitions which are inwoven among the customs and prejudices of civilized communities. But before speaking of these prohibitions, the barbaric mode of reckoning descent should be noticed.

The family name borne by any Australian tribe is perpetuated by the children, whether boys or girls, taking their mother's name. Precisely the same custom is found among the American Indians—the children of both sexes being of the mother's clan. Now, the family, as we define it, does not exist in savage communities, nor, as Mr. McLennan says in his very remarkable work on "Primitive Marriage," had "the earliest human groups any idea of kinship, . . . the physical root of which could be discerned only through observation and reflection." Where the relations of the sexes were confused and promiscuous, the oldest system in which the idea of blood-ties was expressed was a system of kinship through the mother. The habits of the "much-married" primitive men made mistake about any one's mother less likely than mistake about his father; and, if in civilized times it is, as the saying goes, a wise child that knows its own father, he was, in barbarous times, a wise father who knew his own child. Examples tracing the kinship through females,

father and offspring being never of the same clan, abound in both ancient and modern authorities, and perhaps the most amusing one that can be given is found in Dr. Morgan's "Systems of Consanguinity." He says that the "natives of the province of Keang-se are celebrated among the natives of the other Chinese provinces for the mode, or form, used by them in address, namely, 'Laon peon,' which, freely translated, means, 'Oh, you old fellow, brother mine by some of the ramifications of female relationship!'"

The prohibitions arising out of totemism are two: 1. Against intermarriage between those of the same name or crest. 2. Against the eating of the totem by any member of the tribe called after it.

1. Among both Australians and Indians a man is forbidden to marry his own clan, *i.e.*, any woman of his own surname or badge, no matter where she was born or however distantly related to him.

Were this practice of "Exogamy," as marriage outside the tribe is called, limited to one or two places, it might be classed among exceptional local customs based on a tradition, say, of some heated blood-feud between the tribes. But its prevalence among savage or semi-savage races all the world over points to reasons the nature of which is still a *crux* to the anthropologists. The late Mr. McLennan, whose opinion on such a matter is entitled to the most weight, connects it with the custom of female infanticide, which, rendering women scarce, led at once to polyandry, or one female to several males, within the tribe, and to the capturing of women from other tribes. This last-named practice strengthens Mr. McLennan's theory. He cites numerous instances from past and present barbarous races, and traces its embodiment in formal code until we come to the mock relics of the custom in modern times—as, for example, that harmless "survival" in bride-lifting, that is, stealing, as in the word "cattle-lifting."

Connected with this custom is the equally prevailing one which forbids intercourse between relations, as especially between a couple and their fathers and mothers-in-law, and which also forbids mentioning their names. (I have, by the way, heard more than one cynical son-in-law express regret that certain features of this custom had not survived among ourselves.) So far as the aversion which the savage has to telling his own name, or uttering that of any person (especially the dead), or thing teared by him is concerned,

the reason is not far to seek. It lies in that confusion between names and things which marks all primitive thinking. The savage, who shrinks from having his likeness taken in the fear that a part of himself is being carried away thereby, regards his name as something through which he may be harmed. So he will use all sorts of roundabout phrases to avoid saying it, and even change it that he may elude his foes, and puzzle or cheat Death when he comes to look for him. But why a son-in-law should not see the face of his mother-in-law, for so it is among the Aranaks of South America, the Caribs and other tribes of more northern regions, the Fijians, Sumatrans, Dayaks, the natives of Australia. the Zulus, in brief, along the range of the lower culture, is a question to which no satisfactory answer has been given, and to which reference is here made because of its connection with totemism.

II. That the animal which is the totem of the tribe should not be eaten, even where men did not hesitate to eat their fellows, is a custom for which it is less hard to account. The division of flesh into two classes of forbidden and permitted, of clean and unclean, with the resulting artificial liking or repulsion for food which custom arising out of that division has brought about, is probably referable to old beliefs in the inherent sacredness of certain animals. The Indians of Charlotte Island never eat crows, because they believe in crow-ancestors, and they smear themselves with black paint in memory of that tradition; the *Dacotahs* would neither kill nor eat their totems, and if necessity compels these and like barbarians to break the law, the meal is preceded by profuse apologies and religious ceremonies over the slain. The abstention of the Brahmins from meat, the pseudo-revealed injunction to the Hebrews against certain flesh-foods (that against pork has its origin, it has been suggested, in the tradition of descent from a boar) need no detailing here. But, as parallels, some restrictions among the ancient dwellers in these islands are of value. It was, according to *Cæsar*,* a crime to eat the domestic fowl, or goose, or hare, and to this day the last-named is an object of disgust in certain parts of Russia and Brittany. The oldest Welsh laws contain several allusions to the magical character of the hare, which was thought to change its sex every month or year, and to be the com-

panion of the witches, who often assumed its shape.* The revulsion against horse-flesh as food may have its origin in the sacredness of the white horses, which, as *Tacitus* remarks,† were kept by the Germans at the public cost in groves holy to the gods, whose secrets they knew, and whose decrees regarding mortals their neighings interpreted. That this animal was a clan-totem among our forefathers there can be no doubt, and the proofs are with us in the white horses carved in outline on the chalk hills of Berkshire and the west, as in the names and crests of clan descendants.

The survival of the totem in heraldry is worth more than a passing remark, and will have further reference in a succeeding chapter.

XVI.

HERALDRY: ANCESTOR-WORSHIP.

AS we have seen, the totem is the clan-name indicating descent from a common ancestor. It is also the clan-symbol, badge, or crest. Where the tribes among whom it is found are still in the picture-writing stage, *i.e.*, when the idea is expressed by a portrait of the thing itself instead of by some sound-sign—a stage in writing corresponding to the primitive stage in language, when words were imitative—there we find the rude hieroglyphic of the totem a means of intercourse between different tribes, as well as with whites. A striking example of this is given in the sketch (Fig. 1), which is a copy of a petition sent by some Western Indian tribes to the United States Congress for the right to fish in certain small lakes near Lake Superior.

The bird represents the leading clan, the crane; then follow three martens, as totems of three tribes; then the bear, the man-fish, and the cat-fish, also totems. From the eye and heart of each of the animals runs a line connecting them with the eye and heart of the crane, to show that they are all of one mind, and the eye of the crane has also a line connecting it with the lakes on which the tribes have their eyes, and another line running toward Congress.

In the barbaric custom of painting or carving the totem on oars, on the bows and sides of canoes, on weapons, on pillars in the front of houses, and on the

* "De Bell. Gall.," V., c. 12.

* Elton's "Origins of English History," p. 297.

† Germania, IX., 10.

houses themselves; in tattooing it on various parts of the body (in the latter case, in some instances, together with pictures of exploits; so that the man carries on his person an illustrated history of his own life) we have the remote and forgotten origin of heraldic emblems. The symbols of civilized nations, as, *e.g.*, the Imperial eagle, which 30 many states of ancient and modern renown have chosen; the crests of families of rank, with their fabulous monsters, as the cherub, the Greek *gryps*, surviving in the griffin, the dragon, the unicorn; which, born of rude fancy or terrified imagination, are now carved on

rance then and till recently existing as to the origin of crests, and also the discredit into which a seemingly meaningless vanity had fallen, have made it difficult to trace the survival of the totem in the crests even of that numerous company of the Upper Ten who claim descent from warriors who came over with the Conqueror. But there is no doubt that an inquiry conducted on the lines suggested above, and not led into by-paths by false analogies, would yield matter of interest and value. It would add to the evidence of that common semicivilized stage out of which we have risen. Such names as the

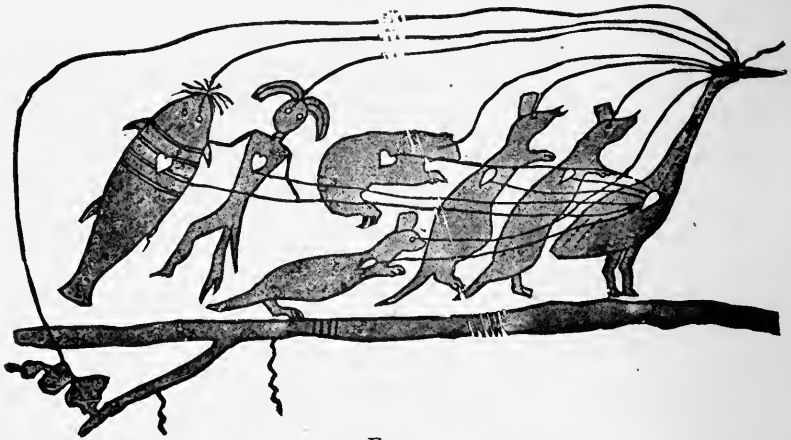


FIG. 1.

the entrance-gates to the houses of the great; the armorial bearings on carriages; the crest engraven on ring or embossed on writing-paper, these are the lineal descendants of the totem; and the Indians, who could see no difference between their system of manitous and those of the white people, with their spread-eagle or their lion-rampant, made a shrewd guess that would not occur to many a *parvenu* applying at the Herald's College for a crest. The continuity is traceable in the custom of the Mexicans and other civilized nations of painting the totemic animals on their banners, flags, crests, and other insignia; and it would seem that we have in the totem the key to the mystery of those huge animal-shaped mounds which abound on the North American continent.

The arbitrary selection in the "ages of chivalry" of such arms as pleased the knightly fancy, or ministered to its pride, or, as was often the case, resembled the name in sound, together with the igno-

Horsings, the Wylfings, the Derings, the Ravens, the Griffins, may hold within themselves traces of the totem name of the horse, wolf, deer, raven, and that "animal fantastical," the griffin. In Scotland we find the clan Chattan, or the wild cat; in Ireland "the men of Osory were called by a name signifying the wild red deer." On the other hand such names may have been given merely as nicknames (*i.e.*, ekename, or the *added* name, from *eke*, "also," or "to augment"), suggested by the physical or mental likeness to the thing after which they are called.

But it is time to turn to the religious significance of the totem, as shown among races worshipping the animal which is their supposed ancestor.

At first glance this seems strong argument in support of Mr. Herbert Spencer's theory that all forms of religion (and all myth) have their origin in ancestor-worship. The mysterious power of stimulation, of excitation to frenzy, or of heal-

ing and soothing, or of poisoning, which certain plants possess, has been attributed to indwelling spirits, which, as Mr. Spencer contends, are regarded as human and ancestral. Very many illustrations of this occur, as, *e.g.*, the worship of the Soma plant, and its promotion as a deity among the Aryans; the use of tobacco in religious ceremonies among the tribes of both Americas; while now and again we find plants as totems. The Pueblos have a tribe called the tobacco-plant, and also one called the red grass. One of the Peruvian Incas was called after the native name of the tobacco-plant; and among the Ojibways the buffalo grass was carried as a charm, and its god said to cause madness. Its manlike character is seen in the accompanying picture (Fig. 2).



FIG. 2.

The worship of animals is on the like theory explained as due to the giving of a nick-name of some beast or bird to a remote ancestor, the belief arising in course of time that such animal was the actual progenitor, hence its worship. We call a man a bear, a pig, or a vampire, in symbolic phrase, and the figure of speech remains a figure of speech with us. But the savage loses the metaphor and it crystallizes into hard matter-of-fact. So the traditions have grown, and Black Eagle, Strong Buffalo, Big Owl, Tortoise, etc., take the shape of the actual forefathers of the tribe having their name and crest. According to the same theory, the adoration of sun, moon, and mountains, etc., is due to a like source. Some famous chief was called the Sun; the metaphor was forgotten; the personal and concrete, as the more easily apprehended, remained; hence, worship of the powers of nature "is a form of ancestor-worship, which has lost in a still greater degree the character of the original."*

The objection raised in former papers of this series to the extreme application

of the solar theory applies, so it seems to me, with equal force to Mr. Spencer's limitation of the origin of myth and religion to one source. Having cleared Scylla, we must not dash against Charybdis. Religion has its origin neither in fear of ghosts, as Mr. Spencer's theory assumes, nor in a perception of the Infinite inherent in man, as Professor Max Müller holds. Rather does it lie in man's sense of vague wonder in the presence of powers whose force he cannot measure, and his expressions toward which are manifest. There is underlying unity, but there are, to quote St. Paul, "diversities of operation." There is just that surface unlikeness which we might expect from the different physical conditions and their resulting variety of subtle influences surrounding various races; influences shaping for them their gods, their upper and nether worlds; influences of climate and soil which made the hell of volcanic countries an abyss of sulphurous, stifling smoke and everlasting fire, and the hell of cold climates a place of deadly frost; which gave to the giant-gods of northern zones their rugged awfulness, and to the goddesses of the sunny south their soft and stately grace. The theory of ancestor-worship as the basis of every form of religion does not allow sufficient play for the vagaries in which the same thing will be dressed by the barbaric fear and fancy, nor for the imagination as a creative force in the primitive mind even at that lowest at which we know it. And of course beneath that lowest lies a lower never to be fathomed. We are apt to talk of primitive man as if his representatives were with us in the black fellows who are at the bottom of the scale, forgetting that during unnumbered ages he was a brute in everything but the capacity by which at last the ape and tiger were subdued within him, of the beginnings of his *thought* we can know nothing, but the fantastic forms in which it is first manifest compel us to regard him as a being whose feelings were uncurbed by reason. That ancestor-worship is one mode among others of man's attitude toward the awe-begetting, mystery-inspiring universe, none can deny. That his earliest temples, as defined sacred spots, were tombs; that he prayed to his dead dear ones, or his dead feared ones, as the case might be, is admitted. From its strong personal character, ancestor-worship was, without doubt, one of the earliest expressions of man's attitude before the world which his fancy filled with spirits. It

* "Principles of Sociology," p. 413.

flourishes among barbarous races to-day; it was the prominent feature of the old Aryan religion; it has entered into Christian practice in the worship of the saints, and perhaps the only feature of religion which the modern Frenchman has retained is the *culte des morts*. That it was a part of the belief of the Emperor Napoleon III. the following extract from his will shows:—"We must remember that those we love look down upon us from heaven and protect us. It is the soul of my great-uncle which has always guided and supported me. Thus will it be with my son also if he proves worthy of his name.

But the worship of ancestors is not primal. The remarks in my former paper on the late recognition of kinship by savages, among whom some rude form of religion existed, tell against it as the earliest mode of worship. Moreover, nature is bigger than man, and this he was not slow to feel. Even if it be conceded that sun-myth and sun-worship once arose through the nick-naming of an ancestor as the Sun, we must take into account the force of that imagination which enabled the unconscious myth-maker, or creed-maker, to credit the moving orbs of heaven with personal life and will. The faculty which could do that might well express itself in awe-struck forms without intruding the ancestral ghost. Further, the records of the classic religions, themselves preserving many traces of a primitive nature-worship, point to an adoration of the greatness and bounty, as well as to a sense of the maleficent and fateful, in earth and heaven which seem prior to the more concrete worship of forefathers and chieftains.

If for the worship of these last we substitute a general worship of spirits, there seems little left on which to differ. As aid to the explanation of the belief in animal ancestors and their subsequent deification and worship, as of the lion, the bull, the serpent, etc., we have always present in the barbaric mind the tendency to credit living things, and indeed lifeless, but moving ones, with a passion, a will, and a power to help or harm immeasurably greater than man's. This is part and parcel of that belief in spirits everywhere, which is the key to savage philosophy, and the growth of which is fostered by such secondary causes as the worship of ancestors.

XVII.

SURVIVAL OF MYTH IN HISTORICAL NARRATIVES.

BEFORE bringing this series of papers to an end, it may be well to give an illustration or two of the survival of myth in historical narrative.

For proofs of the emergence of the higher out of the lower in philosophy and religion, to say nothing of less exalted matters, whether the beast-fable or the nursery rhyme as holding barbaric thought in solution, examples have necessarily been drawn from the mythology of past and present savage races. But these are too remote in time or standpoint to stir other than a languid interest in the reader's mind; their purpose is served when they are cited and classified as specimens. Not thus is it with examples drawn nearer home from sources at which our young thirst for the stirring and romantic was slaked. When we learn that famous names and striking episodes are in some instances only transformed and personified natural phenomena, or, as occurring everywhere, possibly variants of a common legend, the far-reaching influence of primitive thought comes to us in more vivid and exciting form. And although one takes in hand this work of disenchantment in no eager fashion, the loss is more seeming than real. Whether the particular tale of bravery, of selflessness, of faithfulness, with truth of detail, matters little compared with the fact that its reception the wide world over witnesses to human belief, even at low levels, in the qualities which have given man empire over himself and ever raised the moral standard of the race. Moreover, in times like these, when criticism is testing without fear or favor the trustworthiness of records of the past, whether of Jew or Gentile, the knowledge of the legendary origin of events woven into sober history prepares us to recognize how the imagination has fed the stream of tradition, itself no mean tributary of that larger stream of history, the purity of which is now subject of analysis. As a familiar and interesting example let us take the story of William Tell.

Everybody has heard how, in the year 1307 (or, as some say, 1296) Gessler, Vogt (or governor) of the Emperor Albert of Hapsburg, set a hat on a pole as symbol of the Imperial power, and ordered every one who passed by to do obeisance to it; and how a mountaineer named Wilhelm Tell, who hated Gessler and the tyranny

which the symbol expressed, passed by without saluting the hat, and was at once seized and brought before Gessler, who ordered that, as punishment, Tell should shoot an apple off the head of his own son. As resistance was vain, the apple was placed on the boy's head, when Tell bent his bow, and the arrow, piercing the apple, fell with it to the ground. Gessler saw that Tell, before shooting, had stuck a second arrow in his belt, and, asking the reason, received this for answer: "It was for you; had I shot my child, know that this would have pierced your heart."

Now, this story first occurs in the chronicle of Melchior Russ, who wrote at the end of the fifteenth century, *i.e.*, about one hundred and seventy years after its reputed occurrence. The absence of any reference to it in contemporary records caused doubt to be thrown upon it three centuries ago. Guillimann, the author of a work on Swiss Antiquities, published in 1598, calls it a fable, but subscribes to the current belief in it, because the tale is so popular! The race to which he belonged is not yet extinct. A century and a half later, a more fearless skeptic, who said that the story was of Danish origin, was condemned by the Canton of Uri to be burnt alive, and in the well-timed absence of the offender, his book was ordered to be burnt by the common hangman. But the truth is great, and prevails. G. von Wyss, the Swiss historian, has pointed out that the name of Wilhelm Tell does not occur even once in the history of the three cantons, neither is there any trace that a "Vogt" named Gessler ever served the house of Hapsburg there. Moreover, the legend does not correspond to any fact of a period of oppression of the Swiss at the hands of their Austrian rulers.

"There exist in contemporary records no instances of wanton outrage and insolence on the Hapsburg side. It was the object of that power to obtain political ascendancy, not to indulge its representatives in lust or wanton insult," and, where records of disputes between particular persons occur, "the symptoms of violence, as is natural enough, appear rather on the side of the Swiss than on that of the aggrandizing imperial house." *

Candor, however, requires that the evidence in support of the legend should be stated. There is the fountain on the supposed site of the lime-tree in the mar-

ket-place at Altdorf by which young Tell stood, as well as the colossal plaster statue of the hero himself which confronts us as we enter the quaint village. But more than this, the veritable cross-bow itself is preserved in the arsenal at Zurich!

However, although the little Tell's chapel, as restored, "was opened with a national *fête* in the presence of two members of the Federal Council, in June last,"* the Swiss now admit in their school-teaching that the story of the *Apfelschusz* is legendary.

Freudenberger, who earned his death-sentence for affirming that the story came from Denmark, was on the right track, for the following variant of it is given by Saxo Grammaticus, a Danish writer of the twelfth century, who puts it as happening in the year 950:—

"Nor ought what follows to be enveloped in silence. Palnatoki, for some time in the body-guard of King Harold (Harold Gormson, or Bluetooth), had made his bravery odious to many of his fellow-soldiers by the zeal with which he surpassed them. One day, when he had drunk too much, he boasted that he was so skilled a bowman that he could hit the smallest apple, set on the top of a stick some way off, at the first shot, which boast reached the ears of the king. This monarch's wickedness soon turned the confidence of the father to the peril of the son, for he commanded that this dearest pledge of his life should stand in place of the stick, adding a threat that if Palnatoki did not at his first shot strike off the apple, he should with his head pay the penalty of making an empty boast. This command forced him to attempt more than he had promised, and what he *had* said, reported by slanderous tongues, bound him to accomplish what he had *not* said. Yet did not his sterling courage, though caught in the snare of slander, suffer him to lay aside his firmness of heart. As soon as the boy was led forth, Palnatoki warned him to await the speeding of the arrow with calm ears and unbent head, lest by any slight movement of the body he should frustrate the archer's well-tried skill. He then made him stand with his back toward him, lest he should be scared at the sight of the arrow. Then he drew three arrows from his quiver, and with the first that he fitted to the string he struck the apple. When the king asked him why he had taken more than one arrow from his quiver, when he

* *Edinburgh Review*, January, 1860, p. 134. Article on Rilliet's "Origines de la Confédération Suisse: Histoire et Légende."

* *London Times's* telegram from Geneva, June 25, 1883.

was to be allowed to make but one trial with his bow, he made answer, "That I might avenge on thee the swerving of the first by the points of the others, lest perchance my innocence might have been punished, while your violence escaped scot-free."* †

Going further northward we find tales corresponding in their main features to the above, in the Icelandic Saga, the Vilkina; in the Norse Saga of Saint Olaf or Thidrik; and in the story of Harold, son of Sigurd. In the Olaf Saga it is said that the saint or king, desiring the conversion of a brave heathen, named Eindridi, competed with him in various athletic sports, swam with him, wrestled with him, and then shot with him. Olaf then dared Eindridi to strike a writing-tablet from off his son's head with an arrow, and bade two men bind the eyes of the child and hold the napkin so that the boy might not move when he heard the whizz of the arrow. Olaf aimed first, and the arrow grazed the lad's head. Eindridi then prepared to shoot, but the mother of the boy interfered and persuaded the king to abandon this dangerous test of skill. The story adds that had the boy been injured, Eindridi would have revenged himself on the king. †

Somewhat like this, as from the locality might be expected, is the Faroe Isles variant. King Harold challenges Geyti, son of Aslak, and, vexed at being beaten in a swimming match, bids Geyti shoot a hazel-nut from off his brother's head. He consents, and the king witnesses the feat, when Geyti

"Shot the little nut away,
Nor hurt the lad a hair."

Next day Harold sends for the archer, and says:—

"List thee, Geyti, Aslak's son,
And truly tell to me,
Wherefore hadst thou arrows twain
In the wood yestreen with thee?"

To which Geyti answers:—

"Therefore had I arrows twain
Yestreen in the wood with me,
Had I but hurt my brother dear
The other had pierced thee."

With ourselves it is the burden of the ballad of William of Cloudelee, where the brave archer says:—

"I have a sonne seven years old;
Hee is to me full deere;
I will tye him to a stake—
All shall see him that bee here—
And lay an apple upon his head,
And goe six paces him froe;
And I myself with a broad arroe
Shall cleave the apple in towe."

In the *Malleus Maleficarum*, Puncher, a magician on the Upper Rhine, is required to shoot a coin from off a lad's head; while traveling eastward, as far as Persia, we find the Tell myth as an incident in the poem "Mantic Ultrair," a work of the twelfth century.

Thus far I have spoken of the variants of the legend found among Aryan peoples, and it is tempting to base upon this diffusion of a common incident a theory of its origin among the Central Asian ancestors of the Swiss and the Norseman, the Persian and the Icelander. But it is found among non-Aryans also. The ethnologist, Castren, whose researches in Finland have secured a valuable mass of fast-perishing materials, obtained this tale in the village Ultuwa. "A fight took place between some freebooters and the inhabitants of the village of Alajäräi. The robbers plundered every house, and carried off among their captives an old man. As they proceeded with their spoils along the strand of the lake, a lad of twelve years old appeared from among the reeds on the opposite bank, armed with a bow and amply provided with arrows; he threatened to shoot down the captors unless the old man, his father, was restored to him. The robbers mockingly replied that the aged man would be given to him if he could shoot an apple off his head. The boy accepted the challenge, pierced the apple, and freed his father." Among a people in close contact with an Aryan race as the Finns are in contact with both Swedes and Russians, the main incident of the Tell story may easily have been woven into their native tales. But in reference to other non-Aryan races Sir George Dasent, who has treated of the diffusion of the Tell story very fully in the Introduction to his "Popular Tales from the Norse" (a reprint of which would be a boon to students of folk-lore), says that it is common to the Turks and Mongolians, and a legend of the wild Samoyedes, who never heard of Tell or saw a book in their lives, relates it, chapter and verse, of one of their marksmen. What shall we say, then, but that "the story of this bold master-shot was prominent among many

* Bk. x., p. 166. Cf. Baring Gould's "Curious Myths," p. 117; and Fiske's "Myths and Myth-makers," p. 4.

† Baring Gould, p. 119.

tribes and races, and that it only crystallized itself round the great name of Tell by that process of attraction which invariably leads a grateful people to throw such mythic wreaths, such garlands of bold deeds of precious memory, around the brow of its darling champion."* Of course the solar mythologists see in Tell the sun or cloud deity; in his bow the storm-cloud or the iris; and in his arrows the sun-rays or lightning darts.

This is a question which we might leave to the champions concerned to settle. Apart from the evidence of the survival of legend in history, and the lesson of caution in accepting any ancient record as gospel which we should learn therefrom, it is the human element in the venerable tale which interests us most.

Remote in time, far away in place, as its origin it moves us yet. The ennobling qualities incarnated in some hero (whether he be real or ideal matters not) meet with admiring response in the primitive listeners to the story, else it would have been speedily forgotten. Thus does it retain for us witness to the underlying oneness of the human heart beneath all surface differences.

VIII.

MYTHS OF KING ARTHUR AND LLEWELLYN.

WIDESPREAD as a myth may be, it takes depth of root according to the more or less congenial soil where it is dropped. That about Tell found favorable home in the uplands and the free air of Switzerland; with us, S. George, falling on times of chivalry, had abiding place, as also, less rugged of type than the Swiss marksman, had Arthur, the "Blameless King," who, if he ever existed, is smothered in overgrowth of legends both native and imported.

For such cycle of tales as gathered round the name of Arthur, and on which our youthhood was nourished, is as mythical as the wolf that suckled Romulus and Remus. Modern criticism and research have thoroughly sifted the legendary from the true, and if the past remains vague and shadowy, we at least know how far the horizon of certainty extends. The criticism has made short work of the ro-

maning chronicles which so long did duty for sober history, and has shown that no accurate knowledge of the sequence of events is obtainable until late in the period of the English invasions. Save in scattered hints here and there, we are quite in the dark as to the condition of this island during the Roman occupation, while for anything that is known of times prior to this, called for convenience "pre-historic," we are dependent upon unwritten records preserved in tombs and mounds. The information gathered from these has given us some clue to what manner of men they were who confronted the first Aryan immigrants, and, enriched by researches of the ethnologist and philologist, enabled us to trace the movements of races westward, until we find old and new commingled as one English-speaking folk.

All or any of which could not be known to the earlier chronicles. When Geoffrey of Monmouth set forth the glory and renown of Arthur and his court, he recorded and embellished traditions six hundred years old, without thought of weighing the evidence or questioning the credibility of the transmitters. Whether there was a king of that name who ruled over the Silures, and around whom the remnant of brave Kelts rallied in their final struggle against the invading hordes, and who, wounded in battle, died at Glastonbury, and was buried, or rather sleeps, as the legend has it, in the Vale of Avilion, "hath been," as Milton says, "doubted heretofore, and may again, with good reason, for the Monk of Malmesbury and others, whose credit hath swayed most with the learned sort, we may well perceive to have known no more of this Arthur nor of his doings than we now living."

The comparative mythologists say that he is a myth pure and simple; a variant of Sigurd and Perseus; the winning of his famous sword but a repetition of the story of the Teutonic and Greek heroes; the gift of Guinevere as fatal to him as Helen to Menelaus; his knights but reproductions of the Achaian hosts. Much of which is doubtless true. But the romance corresponded to some probable event; it fitted in with the national traditions. There were struggles between the Kelts and subsequent invaders—Romans, Angles, Saxons, Jutes. There were brave chieftains who led forlorn hopes or fought to the death in their fastnesses. There were, in the numerous tribal divisions, petty kings and queens ruling over mimic

* *Introd.* xxxv.

courts, with retinues of knights bent on chivalrous, unselfish service. These were the nuclei of stories which were the early annals of the tribe, the glad theme of bards and minstrels, and from which a long line of poets, to the latest singer of the "Idylls of the King," have drawn the materials of their epics. The fascination which such a cycle of tales had for the people, especially in days when the ballad was history and poetry and all literature rolled into one, was so strong, that the Church wisely imported an element which gave loftier meaning to the knightly life, and infused religious ardor into the camp and court. To the stories of Tristram and Gawayne already woven into the old romance, she added the half-Christian, half-pagan, legend of the knights who left the feast at the Round Table to travel across land and sea that they might free the enslaved, remove the spell from the enchanted, and deliver fair women from the monsters of tyranny and lust, set forth on what in her eyes was a nobler quest—to seek and look upon the San Graal, or Holy Vessel used by Jesus at the Last Supper, and into which Joseph of Arimathea collected the blood and water that streamed from the side of the crucified Jesus. This mystic cup, in which we have probably a sacrificial relic of the old British religion imported into the Christian incident with which it blended so well, floated, according to Arthurian legend, suddenly into the presence of the King and his Round Table knights at Camelot as they sat at supper, and was as suddenly borne away, to be henceforth the coveted object of knightly endeavor. Only the baptized could hope to behold it; to the unchaste it was veiled; hence only they among the knights who were pure in heart and life vowed to go in quest of the San Graal, and return not until they had seen it. So to Sir Galahad, the "just and faithful," Tennyson sings how the sacred cup appeared,

"Sometimes on lonely mountain meres
I find a magic bark;
I leap on board: no helmsman steers:
I float till all is dark.
A gentle sound, an awful light!
Three angels bear the holy Grail:
With folded feet, in stoles of white,
On sleeping wings they sail.
Ah, blessed vision! blood of God!
My spirit beats her mortal bars,
As down dark tides the glory slides,
And, star-like, mingles with the stars."

While in such legends as the Arthurian

group the grain of truth, if it exists, is so imbedded as to be out of reach, there are others concerning actual personages, notably Cyrus and Charlemagne, not to quote other names from both "profane" and sacred history, in which the fable can be separated from the fact without difficulty. Enough is known of the life and times of such men to detach the certain from the doubtful, as, *e.g.*, when Charlemagne is spoken of as a Frenchman and as a Crusader before there was a French nation, or the idea of Crusades had entered the heads of Most Christian Kings; and as in the legends of the infancy of Cyrus, which are of a type related to like legends of the wonderful round the early years of the famous.

This, however, by the way, since, leaving illustration of the fabulous in heroic story, it will be interesting to trace it through such a tale of pathos and domestic life as the well-known one of Llewellyn and his faithful hound, Gellert.

Whose emotions have not been stirred by the story of Llewellyn the Great going out hunting, and missing his favorite dog; of his return, to be greeted by the creature with more than usual pleasure in his eye, but with jaws besmeared with blood; of the anxiety with which Llewellyn rushed into the house, to find the cradle where had lain his beautiful boy upset, and the ground around it soaked with blood; of his thereupon killing the dog, and then seeing the child lying unharmed beneath the cradle, and sleeping by the side of a dead wolf, from whose ravenous maw the faithful Gellert had delivered it? Most of us, in our visits to North Wales, have stood by Gellert's grave at Beddgelert, little suspecting that the affecting story occurs in the folk-lore of nearly every Aryan people, and of several non-Aryan races, as the Egyptians and Chinese.

Probably it comes to us as many other tales have come, through collections like the well-known "Gesta Romanorum," compiled by mediæval monks for popular entertainment. In the version given in that book, the knight who corresponds to Llewellyn, after slaying his dog, discovers that it had saved his child from a serpent, and thereupon breaks his sword and departs on a pilgrimage to the Holy Land. But the monks were no inventors of such tales; they recorded those that came to them through the pilgrims, students, traders, and warriors who traveled from West to East and from East to West in the Middle Ages, and it is in the native

home of fable and imagery, the storied Orient, that we must seek for the earliest forms of the Gellert legend. In the Panchatantra, the oldest and most celebrated Sanskrit fable book, the story takes this form :—An infirm child is left by its mother while she goes to fetch water, and she charges the father, who is a Brahman, to watch over it. But he leaves the house to collect alms, and soon after this a snake crawls toward the child. In the house was an ichneumon, a creature often cherished as a house pet, who sprang at the snake and throttled it. When the mother came back, the ichneumon went gladly to meet her, his jaws and face smeared with the snake's blood. The horrified mother, thinking it had killed her child, threw her water-jar at it, and killed it; then seeing the child safe beside the mangled body of the snake, she beat her breast and face with grief, and scolded her husband for leaving the house.

We find the same story, with the slight difference that the animal is an otter, in a later Sanskrit collection, the Hitopadesa, but we can track it to that fertile source of classic and mediæval fable, the Buddhist Jatakas, or Birth Stories, a very ancient collection of fables, which, professing to have been told by Buddha, narrates his exploits in the 550 births through which he passed before attaining Buddhahood. In the Vinaya Pitaka of the Chinese Buddhist collection, which, according to Mr. Beal, dates from the fifth century A.D., and is translated from original scriptures supposed to have existed near the time of Asoka's council in the third century B.C., we have the earliest extant form of the tale. That in the Panchatantra is obviously borrowed from it, the differences being in unimportant detail, as, for example, the nakula, or mongoose, is killed by the Brahman on his return home, the wife having neglected to take the child with her as bidden by him. He is filled with sorrow, and then a Deva continues the strain :—

Let there be due thought and consideration,
Give not way to hasty impulse,
By forgetting the claims of true friendship
You may heedlessly injure a kind heart (person)

As the Brahman killed the nakula.

The several versions of the story which could be cited from German, Russian, Persian, and other Aryan folk-lore, would merely present certain variations due to local coloring and to the inventiveness of the narrators or transcribers; and, omit-

ting these at the demand of space, it will suffice to give the Egyptian variant or corresponding form, in which the tragical has given place to the amusing, save, perhaps, in the opinion of the Wali. This luckless person "once smashed a pot full of herbs which a cook had prepared. The exasperated cook thrashed the well-intentioned but unfortunate Wali within an inch of his life, and when he returned, exhausted with his efforts at belaboring the man, he discovered among the herbs a poisonous snake."

In pointing to the venerable Buddhist Birth Stories as the earliest extant source of Aryan fables, it should be added that these were with Buddha and his disciples the favorite vehicle of carrying to the hearts of men those lessons of gentleness and tenderness toward all living things which are a distinctive feature of that non-persecuting religion, and thus of diffusing a spirit which would have us.

Never to blend our pleasure or our pride
With sorrow of the meanest thing that lives.

XIX.

SEMITIC MYTHS AND LEGENDS.

WITH the important exception of reference to the change effected in the Jewish doctrines of spirits, and its resulting influence on Christian theology, by the transformation of the mythical Ahriman of the old Persian religion into the archfiend Satan, but slight allusion has been made in these pages to the myths and legends of the Semitic race. Under this term, borrowed from the current belief in their descent from Shem, are included extant and extinct people, the Assyrians, Chaldeans or Babylonians, Phœnicians, Arabs, Syrians, Jews and Ethiopians.

The mythology of the Aryan nations has had the advantage of the most scholarly criticism, and the light which this has thrown upon the racial connection of peoples between whom all superficial likeness had long disappeared, as well as upon the early condition of their common ancestors, is of the greatest value as aid to our knowledge of the mode of man's intellectual and spiritual growth. And the comparisons made between the older and cruder forms underlying the elaborated myth and the myths of semi-barbarous races have supported conclusions concerning man's primitive state identical with those de-

duced from the material relics of the Ancient and Newer Stone Ages, namely, that the savage races of to-day represent not a degradation to which man has sunk, but a condition out of which all races above the savage have, through much tribulation, emerged. An important exception to this has, however, been claimed on behalf of at least one branch of the Semitic race—namely, the Hebrews or Jews. This claim has rested on their assumed selection by the Deity for a definite purpose in the ordering and directing of human affairs; a theory of the divine government which this journal is concerned neither to defend nor deny. No assumption of supernatural origin can screen documents of disputed authorship and uncertain meaning from the investigation applied to all ancient records; nor can the materials elude dissection because hitherto regarded as organic parts of revelation. The real difficulties are in the structure of the language and in the scantiness of the material as contrasted with the flexible and copious mythology of the Aryan race. And the investigation has been in some degree checked by the mistaken dicta of authorities such as M. Renan and the late Baron Bunsen; the former contending that “the Semites never had a mythology,” and the latter (although any statement of his carries far less weight) that “it is the grand, momentous, and fortunate self-denial of Judaism to possess none.”

But, independently of the refusal of the student of history to admit that exceptional place has been of direct Divine purpose accorded to any particular race, the discoveries of literatures much older than the Hebrew, and in which legends akin to those in the earlier books of the Old Testament are found, together with the proofs of historical connection between the peoples having these common legends, have given the refutation to the distinctive character of the Semitic race claimed by M. Renan. That a people dwelling for centuries, as the Hebrews did, in a land which was the common highway between the great nations of antiquity; a people subject to vicissitudes bringing them, as the pipkin between iron pots, into collision and subject relations to Egyptians, Persians, and other powerful folk, should remain uninfluenced in their intellectual speculations and religious beliefs, would indeed be a greater miracle than that which makes their literature inspired in every word and vowel-point. The remarkable collection of cuneiform inscriptions (so called from their wedge-like shape:

Lat. *cuneus*, a wedge) on the baked clay cylinders and tablets of the vast libraries of Babylon and Nineveh, has brought out one striking fact, namely, that the Semitic civilization, venerable as that is, was the product of, or at least greatly influenced by, the culture of a non-Semitic people called the Akkadians, from a word meaning “highlanders.” These more ancient dwellers in the Euphrates valley and uplands were not only non-Semitic, but non-Aryan, and probably rationally connected with the complex group of peoples embracing the Tartar-Mongolians, the distinguishing features of whose religion are Shamanistic, with belief in magic in its manifold forms. “In Babylonia, under the non-Semitic Akkadian rule, the dominant creed was the fetish worship, with all its ritual of magic and witchcraft; and when the Semites conquered the country, the old learning of the land became the property of the priests and astrologers, and the Akkadian language the Latin of the Empire.”*

It was during the memorable period of the Exile that the historical records of the Jews underwent revision, and from that time dates the incorporation into them of legends and traditions which, invested with a purity and majesty distinctively Hebrew, were borrowed from the Babylonians, although primarily Akkadian. They are here, as elsewhere, the product of the childhood of the race, when it speculates and invents, framing its theory of the beginnings, their when and how; when it prattles of the Golden Age, which seems to lie behind, in the fond and not extinct delusion that “the old is better;” when it frames its fairy tales, weird or winsome, in explanation of the uncommon, the unknown, and the bewildering.

The Babylonian origin of the early biblical stories is now generally admitted, although the dogmas based upon certain of them still retard the acceptance of this result of modern inquiry in some quarters. That reluctance is suggestively illustrated in Dr. Wm. Smith’s “Dictionary of the Bible,” where, turning to the heading “Deluge,” the reader is referred to “Flood” and hence to “Noah!”

So much for the legendary; but the analysis, of the more strictly mythical, the names of culture-ancestors and heroes, sons of Anak and of God, scattered over the Pentateuch, is not so easy a matter. The most important work in this direction has been attempted by Dr. Gird-

* *Academy*, Nov. 17, 1877, p. 472.

zîher,* but even his scholarship has failed to convince sympathetic readers that Abraham and Isaac are sun-myths, and that the twelve sons of Jacob are the zodiacal signs! Under the Professor's etymological solvent the personality of the patriarchs disappears, and the charming idylls and pastorals of old Eastern life become but phases of the sun and the weather. The Hebrew, like the Aryan myth-maker, speaks of the relations of day and night, of gray morning and sunrise, of red sunset and the darkness of night, as of love and union, or strife and pursuit, or gloomy desire and coy evasion. Abh-râm is the High or Heaven-Father (from *râm*, "to be high") with his numberless host of descendants. Yis-châk, commonly called Isaac, denotes "he who laughs," and so the Laughing one, whom the High Father intends to slay, is the smiling day or the smiling sunset, which gets the worst of the contest with the night sky and disappears. Sarah signifies princess, or the moon, the queen who rules over the great army glittering amid the darkness. The expulsion of Hagar (derived from a root *hajara*, meaning "to fly," and yielding the word *hijrâ* or "flight," whence the Mohammedan Hegira) is the Semitic variant of the inexhaustible theme of all mythology, the battle of Day and Night; Hagar flying before the inconstant sun and the jealous moon. And so on through the whole range of leading characters in Hebrew history; Cain and Abel, in which the critic overlooks the more likely explanation of the story as a quarrel between nomads and tillers of the soil; Jephthah, in which the sun-god kills at mid-day the dawn, his own offspring; Samson, or more correctly Shimshôn, from the Hebrew word for sun, the incidents of whose life, as expounded by Professor Steinthal,† are more clearly typical of the labors of the sun; Jonah and the fish, a story long ago connected with the myth of Herakles and Hésionê; "as on occasion of the storm the dragon or serpent swallows the sun, so when he sets he is swallowed by a mighty fish, waiting for him at the bottom of the sea. Then when he appears again on the horizon, he is spat out on the shore by the sea-monster."‡

These bare references must suffice to

show that there is in Hebrew literature a large body of material which must undergo the sifting and the criticism which has been applied with success to Indo-European and non-Aryan myth. This done, the Semitic race will contribute its share of evidence in support of those conditions under which it has been the main purpose of these papers to show that myth has its birth and growth.

XX.

CONCLUSION.

THE serial form of publication * has its advantages in these run-and-read days in compelling the writer to pack his thoughts closely together, but it has its disadvantages in breaking their sequence, and compelling the reader to turn to back numbers for the missing links.

The multitude of subjects traversed in these chapters compelled presentment in so concise a form that any attempt to gather into a few sentences the sum of things said would be as a digest of a digest, and it is, therefore, better to briefly emphasize the conclusions to which the gathered evidence points. It was remarked at the outset, when laying stress on the serious meaning which lies at the heart of myths, that they have their origin in the endeavor of barbaric man to explain his surroundings. The mass of fact brought together illustrates and confirms this view, and has thereby tended to raise what was once looked upon as fantastic, curious, and lawless, to the level of a subject demanding sober treatment and examination on strictly scientific methods.

Archbishop Trench, in his "Study of Words," quotes Emerson's happy characterization of language as fossil poetry and fossil history: "Just as in some fossil, curious and beautiful shapes of vegetable or animal life, the graceful fern, or the finely-vertebrated lizard, such as have been extinct for thousands of years, are permanently bound up with the stone, so in words are beautiful thoughts and images, the imagination and the feeling of past ages of men long since in their graves, of men whose very names have perished, preserved and made safe forever."† In like manner, we may speak of myths as

* "Mythology among the Hebrews, and its Historical Development." London: Longmans.

1877.

† "Goldziher," pp. 392, ff.

‡ Ibid. p. 103.

* These papers were originally published in Mr. R. A. Proctor's weekly scientific magazine, *Knowledge*.

† "Study of Words," HUMBOLDT LIBRARY, No. 30, p. 2.

fossil ethics and fossil theology, but, with more appositeness, as embryonic ethics and theology, since they contain potentially all the philosophies and theologies "that man did ever find."

And to the student of the history of humanity who rejoices in the sure foundation on which, tested in manifold ways, the convictions of the highest and noblest of the race rest, the value of myth is increased in its being a natural outgrowth of the mind when, having advanced to the point at which curiosity concerning the causes of surrounding things arises, it frames its crude explanations. For not that which man claims to have received as a message from the gods, as a revelation from heaven, but that which he has learned by experience often painful and bitter, and which succeeding generations have either verified or improved upon, or disproved altogether, is, in the long run, of any worth. Through it alone, as we follow the changes wrought in the process from guess to certainty, can we determine what was the intellectual stage of man in his mental infancy, and how far it finds correspondences in the intellectual stage of existing barbaric races.

Thus, the study of myth is nothing less than the study of the mental and spiritual history of mankind. It is a branch of that larger, vaster science of evolution which so occupies our thoughts to-day and with which the philosopher and the theologian must reckon. The evidence which it brings from the living and dead mythologies of every race is in accord with that furnished by their more tangible relics, that the history of mankind is a history of slow but sure advance from a lower to a higher; of ascent, although with backslidings oft. It confirms a momentous canon of modern science, that the laws of evolution in the spiritual world are as determinable as they are in the physical. To this we, for the enrichment of our life and helpful service of our kind, do well to give heed. Wherever we now turn eye or ear the unity of things is manifest, and their unbroken harmony heard. With the theory of evolution in our hands as the master-key, the immense array of facts that seemed to lie unrelated and discrete, are seen to be interrelated and in necessary dependence—"a mighty sum of things forever speaking." That undisturbed relation of cause and effect which science has revealed and confirmed, extends backward as well as reaches forward; its continuity involves the inclusion of man

as a part of nature, and the study of his development as one in which both the biologist and the mythologist engage toward a common end.

APPENDIX.

AN AMERICAN INDIAN MYTH.

[This interesting mythic tale is taken from J. W. Powell's "Mythology of the North American Indians" (First Annual Report of the Bureau of Ethnology): It is entitled "Ta-vvots' has a fight with the Sun."]

Ta-vvots', the little rabbit, was wont to lie with his back to the sun when he slept. One day he thus slept in camp while his children played around him. After a time they saw that his back was smoking, and they cried out, "What is the matter with your back, father?" Startled from his sleep, he demanded to know the cause of the uproar. "Your back is covered with sores, and full of holes," they replied. Then *Ta-vvots'* was very angry, for he knew that *Ta'-vi*, the sun, had burned him, and he sat down by the fire for a long time in solemn mood, pondering on the injury and insult he had received. At last, rising to his feet, he said, "My children, I must go and make war upon *Ta'-vi*." And straightway he departed.

Now his camp was in the valley of the Mo-a-pa [a stream in South-eastern Nevada]. On his journey he came to a hill, and standing on its summit he saw in a valley to the east a beautiful stretch of verdure, and he greatly marveled at the sight, and desired to know what it was. On going down to the valley he found a cornfield, something he had never before seen, and the ears were ready for roasting. When he examined them, he saw that they were covered with beautiful hair, and he was much astonished. Then he opened the husk, and found within soft white grains of corn, which he tasted. Then he knew that it was corn, and good to eat. Plucking his arms full he carried them away, roasted them on a fire, and ate until he was filled.

Now when he had done all this, he reflected that he had been stealing, and he was afraid; so he dug a hole in which to hide himself.

Cin-ai'-äv was the owner of this field, and when he walked through and saw that his corn had been stolen he was ex-

ceedingly wroth, and said, "I will slay this thief *Ta-vvoots'*; I will kill him, I will kill him." And straightway he called his warriors to him and made search for the thief, but could not find him, for he was hid in the ground. After a long time they discovered the hole, and tried to shoot *Ta-vvoots'* as he was standing in the entrance, but he blew their arrows back. This made *Cin-ai-äv's* people very angry, and they shot many arrows, but *Ta-vvoots'*'s breath was as a warder against them all. Then with one accord they ran to snatch him up with their hands, but, all in confusion, they only caught each other's fists, for with agile steps *Ta-vvoots'* dodged into his retreat. Then they began to dig, and said they would drag him out. And they labored with great energy, all the time taunting him with shouts and jeers. But *Ta-vvoots'* had a secret passage from the main chamber of his retreat, which opened by a hole above the rock overhanging the entrance where they were at work.

When they had proceeded with this digging until they were quite under ground, *Ta-vvoots'*, standing on the rock above, hurled the magical ball which he was accustomed to carry with him, and striking the ground above the diggers, it caved the earth in, and they were all buried. "Aha," said he, "why do you wish to hinder me on my way to kill the Sun? *A'-nier ti-tik-a-nämp kwaik-ai'-gar* (fighting is my eating tool, I say; that's so)," and he proceeded on his way musing, "I have started out to kill; vengeance is my work; every one I meet will be an enemy. It is well; no one shall escape my wrath."

The next day he saw two men making arrow-heads of hot rocks, and drawing near he observed their work for a time from a position where he could not be seen. Then stepping forth he said, "Let me help you," and when the rocks were on the fire again and were hot to redness he said, "Hot rocks will not burn me." And they laughed at him. "May be you would have us believe that you are a ghost?" "I am not a ghost," said he, "but I am a better man than you are. Hold me on these hot rocks, and if I do not burn you must let me do the same to you." To this they readily agreed, and when they had tried to burn him on the rocks, with his magic breath he kept them away at a distance so slight they could not see but that the rocks did really touch him. When they perceived that he was not burned

they were greatly amazed, and trembled with fear. But having made the promise that he should treat them in like manner, they submitted themselves to the torture, and the hot rocks burned them until, with great cries, they struggled to get free, but unrelenting *Ta-vvoots'* held them until the rocks had burned through their flesh into their entrails, and so they died. "Aha," said *Ta-vvoots'*, "lie there until you can get up again. I am on my way to kill the Sun. *A'-nier ti-tik-a-nämp kwaik-ai'-gar*." And sounding the war-whoop he proceeded on his way.

The next day he came to where two women were gathering berries in baskets, and when he sat down they brought him some of the fruit and placed it before him. He saw there were many leaves and thorns among the berries, and he said, "Blow these leaves and thorns into my eyes," and they did so, hoping to blind him; but with his magic breath he kept them away, so that they did not hurt him.

Then the women averred that he was a ghost. "I am no ghost," said he, "but a common person. Do you not know that leaves and thorns cannot hurt the eye? Let me show you;" and they consented, and were made blind. Then *Ta-vvoots'* slew them with his *pa-räm'-o-kwi*. "Aha," said he, "you are caught with your own chaff. I am on my way to kill the Sun. This is good practice—I must learn how. *A'-nier ti-tik-a-nämp kwaik-ai'-gar*." And sounding the war-whoop he proceeded on his way.

The next day he saw some women standing on the Hurricane Cliff, and as he approached he heard them say to each other that they would roll rocks down upon his head and kill him as he passed; and drawing near, he pretended to be eating something and enjoying it with great gusto; so they asked him what it was, and he said it was something very sweet, and they begged that they might be allowed to taste of it also. "I will throw it up to you," said he; "come to the brink and catch it." When they had done so, he threw it up so that they could not quite reach it, and he threw it in this way many times, until, in their eagerness to secure it, they all crowded too near the brink, fell, and were killed. "Aha," said he, "you were killed by your own eagerness. I am on my way to kill the Sun. *A'-nier ti-tik-a-nämp kwaik-ai'-gar*." And sounding the war-whoop he passed on.

The following day he saw two women fashioning water-jugs, which are made of

willow-ware, like baskets, and afterward lined with pitch. When afar off he could hear them converse, for he had a wonderful ear. "Here comes that bad *Ta-vvots*," said they; "how shall we destroy him?" When he came near, he said, "What was that you were saying when I came up?" "Oh, we were only saying, 'Here comes our grandson,'"* said they. "Is that all?" replied *Ta-vvots*, and looking around he said, "Let me go into your water-jug;" and they allowed him to do so. "Now braid the neck." This they did, making the neck very small; then they laughed with great glee, for they supposed he was entrapped. But with his magic breath he burst the jug and stood up before them; and they exclaimed, "You must be a ghost!" but he answered, "I am no ghost. Do you not know that jugs were made to hold water, but cannot hold men and women?" At this they wondered greatly, and said he was wise. Then he proposed to put them in jugs in the same manner, in order to demonstrate to them the truth of what he had said; and they consented. When he had made the necks of the jugs and filled them with pitch he said, "Now jump out;" but they could not. It was now his turn to deride; so he rolled them about and laughed greatly, while their half-stifled screams filled the air. When he had sported with them in this way until he was tired he killed them with his magical ball. "Aha," said he, "you are bottled in your own jugs. I am on my way to kill the Sun; in good time I shall learn how. *A'-nier ti-tik'-a-númp kwaik-ai'-gar*." And sounding the war-whoop he passed on.

The next day he came upon *Kwi'-ats*, the bear, who was digging a hole in which to hide, for he had heard of the fame of *Ta-vvots* and was afraid. When the great slayer came to *Kwi'-ats* he said, "Don't fear, my great friend, I am not the man from whom to hide. Could a little fellow like me kill so many people?" And the bear was assured. "Let me help you dig," said *Ta-vvots*, "that we may hide together, for I also am fleeing from the great destroyer. So they made a den deep in the ground, with its entrance concealed by a great rock. Now *Ta-vvots* secretly made a private passage from the den out to the side of the mountain, and when the work was completed the two went out together to the

hill-top to watch for the coming of the enemy. Soon *Ta-vvots* pretended that he saw him coming, and they ran in great haste to the den. The little one outran the greater, and going into the den hastened out again through his secret passage.

When *Kwi'-ats* entered he looked about, and not seeing his little friend he searched for him for some time, and still not finding him, he supposed that he must have passed him on the way, and went out again to see if he had stopped or been killed. By this time *Ta-vvots* had perched himself on the rock at the entrance of the den, and when the head of the bear protruded through the hole below he hurled his *pa-rám'-o-kwi* and killed him. "Aha," said *Ta-vvots*, "I greatly feared this renowned warrior, but now he is dead in his own den. I am going to kill the Sun. *A'-nier ti-tik'-a-númp kwaik-ai'-gar*." And sounding the war-whoop he went on his way.

The next day he met *Ku-mi'-a-pôts*, the tarantula. Now this knowing personage had heard of the fame of *Ta-vvots* and determined to outwit him. He was possessed of a club with such properties that, although it was a deadly weapon when used against others, it could not be made to hurt himself, though wielded by a powerful arm.

As *Ta-vvots* came near, *Ku-mi'-a-pôts* complained of having a headache; moaning and groaning, he said there was an *u-nu'-pôts*, or little evil spirit, in his head, and he asked *Ta-vvots* to take the club and beat it out. *Ta-vvots* obeyed, and struck with all his power, and wondered that *Ku-mi'-a-pôts* was not killed; but he urged *Ta-vvots* to strike harder. At last *Ta-vvots* understood the nature of the club and guessed the wiles of *Ku-mi'-a-pôts*, and raising the weapon as if to strike again, he dexterously substituted his magic ball and slew him. "Aha," said he, "that is a blow of your own seeking, *Ku-mi'-a-pôts*. I am on my way to kill the Sun; now I know that I can do it. *A'-nier ti-tik'-a-númp kwaik-ai'-gar*." And sounding his war-whoop he went on his way.

The next day he came to a cliff which is the edge or boundary of the world on the east, where careless persons have fallen into unknown depths below. Now to come to the summit of this cliff it is necessary to climb a mountain, and *Ta-vvots* could see three gaps or notches in the mountain, and he went up into the one on the left; and he demanded to know

* This is a very common term of endearment used by elder to younger persons.

or all the trees which were standing by of what use they were. Each one in turn praised its own qualities, the chief of which in every case was its value as fuel. *Ta-rrwots'* shook his head and went into the center gap, and had another conversation with the trees, receiving the same answer. Finally he went into the third gap—that on the right. After he had questioned all the trees and bushes, he came at last to a little one called *yu'-i-nump*, which modestly said it had no use, that it was not even fit for fuel. "Good," said *Ta-rrwots'*, and under it he lay down to sleep.

When the dawn came into the sky *Ta-rrwots'* arose and stood on the brink overhanging the abyss from which the Sun was about to rise. The instant it appeared he hurled his *pa-rám-o-kwi*, and striking it full in the face shattered it into

innumerable fragments, and these fragments were scattered over all the world and kindled a great conflagration. *Ta-rrwots'* ran and crept under the *yu'-i-nump* to obtain protection. At last the fire waxed very hot over all the world, and soon *Ta-rrwots'* began to suffer and tried to run away; but as he ran his toes were burned off, and then slowly, inch by inch, his legs, and then his body, so that he walked on his hands; and these were burned, and he walked on the stumps of his arms; and these were burned, until there was nothing left but his head. And now, having no other means of progression, his head rolled along the ground until his eyes, which were much swollen, burst by striking against a rock, and the tears gushed out in a great flood which spread out over all the land and extinguished the conflagration.

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ILLUSIONS

A PSYCHOLOGICAL STUDY

By JAMES SULLY

AUTHOR OF "SENSATION AND INTUITION," "PESSIMISM," ETC.

IN TWO PARTS—PART FIRST

PREFACE.

THE present volume takes a wide survey of the field of error, embracing in its view not only the illusions of sense dealt with in treatises on physiological optics, etc., but also other errors familiarly known as illusions, and resembling the former in their structure and mode of origin. I have throughout endeavored to keep to a strictly scientific treatment, that is to say, the description and classification of acknowledged errors, and the explanation of these by a reference to their psychical and physical conditions. At the same time, I was not able, at the close of my exposition, to avoid pointing out how the psychology leads on to the philosophy of the subject. Some of the chapters were first roughly sketched out in articles published in magazines and reviews; but these have been not only greatly enlarged, but, to a considerable extent, rewritten.

Hampstead, April, 1881.

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CHAPTER I.

THE STUDY OF ILLUSION.

COMMON sense, knowing nothing of fine distinctions, is wont to draw a sharp line between the region of illusion and that of sane intelligence. To be the victim of an illusion is, in the popular judgment, to be excluded from the category of rational men. The term at once calls up images of stunted figures with ill-developed brains, half-witted

creatures, hardly distinguishable from the admittedly insane. And this way of thinking of illusion and its subjects is strengthened by one of the characteristic sentiments of our age. The nineteenth century intelligence plumes itself on having got at the bottom of mediæval visions and church miracles, and it is wont to commiserate the feeble minds that are still subject to these self-deceptions.

According to this view, illusion is something essentially abnormal and allied to insanity. And it would seem to follow that its nature and origin can be best studied by those whose speciality it is to observe the phenomena of abnormal life. Scientific procedure has in the main conformed to this distinction of common sense. The phenomena of illusion have ordinarily been investigated by alienists, that is to say, physicians who are brought face to face with their most striking forms in the mentally deranged.

While there are very good reasons for this treatment of illusion as a branch of mental pathology, it is by no means certain it can be a complete and exhaustive one. Notwithstanding the flattering supposition of common sense, that illusion is essentially an incident in abnormal life, the careful observer knows well enough that the case is far otherwise.

There is, indeed, a view of our race diametrically opposed to the flattering opinion referred to above, namely, the humiliating judgment that all men habitually err, or that illusion is to be regarded as the natural condition of mortals. This idea has found expression, not only in the cynical exclamation of the misanthropist that most men are fools, but also in the cry of despair that sometimes

breaks from the weary searcher after absolute truth, and from the poet when impressed with the unreality of his early ideals.

Without adopting this very disparaging opinion of the intellectual condition of mankind, we must recognize the fact that most men are sometimes liable to illusion. Hardly anybody is always consistently sober and rational in his perceptions and beliefs. A momentary fatigue of the nerves, a little mental excitement, a relaxation of the effort of attention by which we continually take our bearings with respect to the real world about us, will produce just the same kind of confusion of reality and phantasm which we observe in the insane. To give but an example: the play of fancy which leads to a detection of animal and other forms in clouds, is known to be an occupation of the insane, and is rightly made use of by Shakespeare as a mark of incipient mental aberration in Hamlet; and yet this very same occupation is quite natural to children, and to imaginative adults when they choose to throw the reins on the neck of their phantasies. Our luminous circle of rational perception is surrounded by a misty penumbra of illusion. Common sense itself may be said to admit this, since the greatest stickler for the enlightenment of our age will be found in practice to accuse most of his acquaintance at some time or another of falling into illusion.

If illusion thus has its roots in ordinary mental life, the study of it would seem to belong to the physiology as much as to the pathology of mind. We may even go further, and say that in the analysis and explanation of illusion the psychologist may be expected to do more than the physician. If, on the one hand, the latter has the great privilege of observing the phenomena in their highest intensity, on the other hand, the former has the advantage of being familiar with the normal intellectual process which all illusion simulates or caricatures. To this it must be added that the physician is naturally disposed to look at illusion mainly, if not exclusively, on its practical side, that is, as a concomitant and symptom of cerebral disease, which it is needful to be able to recognize. The psychologist has a different interest in the subject, being especially concerned to understand the mental antecedents of illusion and its relation to accurate perception and belief. It is pretty evident, indeed, that the phenomena of illusion form a region common to the psychologist and the mental pathologist, and that the complete elucidation of the subject will need the co-operation of the two classes of investigator.

In the present volume an attempt will be made to work out the psychological side of the subject; that is to say, illusions will be viewed in their relation to the process of just and accurate perception. In the carrying out of this plan our principal attention will be given to the manifestations of the illusory impulse in normal life. At the same time,

though no special acquaintance with the pathology of the subject will be laid claim to, frequent references will be made to the illusions of the insane. Indeed, it will be found that the two groups of phenomena—the illusions of the normal and of the abnormal condition—are so similar, and pass into one another by such insensible gradations, that it is impossible to discuss the one apart from the other. The view of illusion which will be adopted in this work is that it constitutes a kind of borderland between perfectly sane and vigorous mental life and dementia.

And here at once there forces itself on our attention the question, What exactly is to be understood by the term "illusion"? In scientific works treating of the pathology of the subject, the word is confined to what are specially known as illusions of the senses, that is to say, to false or illusory perceptions. And there is very good reason for this limitation, since such illusions of the senses are the most palpable and striking symptoms of mental disease. In addition to this, it must be allowed that, to the ordinary reader, the term first of all calls up this same idea of a deception of the senses.

At the same time, popular usage has long since extended the term so as to include under it errors which do not counterfeit actual perceptions. We commonly speak of a man being under an illusion respecting himself when he has a ridiculously exaggerated view of his own importance, and in a similar way of a person being in a state of illusion with respect to the past when, through frailty of memory, he pictures it quite otherwise than it is certainly known to have been.

It will be found, I think, that there is a very good reason for this popular extension of the term. The errors just alluded to have this in common with illusions of sense, that they simulate the form of immediate or self-evident cognition. An idea held respecting ourselves or respecting our past history does not depend on any other piece of knowledge; in other words, is not adopted as the result of a process of reasoning. What I believe with reference to my past history, so far as I can myself recall it, I believe instantaneously and immediately, without the intervention of any premise or reason. Similarly, our notions of ourselves are, for the most part, obtained apart from any process of inference. The view which a man takes of his own character or claims on society he is popularly supposed to receive intuitively by a mere act of internal observation. Such beliefs may not, indeed, have all the overpowering force which belongs to illusory perceptions, for the intuition of something by the senses is commonly looked on as the most immediate and irresistible kind of knowledge. Still, they must be said to come very near illusions of sense in the degree of their self-evident certainty.

Taking this view of illusion, we may provisionally define it as any species of error which counterfeits the form of immediate,

self-evident, or intuitive knowledge, whether as sense-perception or otherwise. Whenever a thing is believed on its own evidence and not as a conclusion from something else, and the thing then believed is demonstrably wrong, there is an illusion. The term would thus appear to cover all varieties of error which are not recognized as fallacies or false inferences. If for the present we roughly divide all our knowledge into the two regions of primary or intuitive, and secondary or inferential knowledge, we see that illusion is false or spurious knowledge of the first kind, fallacy false or spurious knowledge of the second kind. At the same time, it is to be remembered that this division is only a very rough one. As will appear in the course of our investigation, the same error may be called either a fallacy or an illusion, according as we are thinking of its original mode of production or of the form which it finally assumes; and a thorough-going psychological analysis of error may discover that these two classes are at bottom very similar.

As we proceed, we shall, I think, find an ample justification for our definition. We shall see that such illusions as those respecting ourselves or the past arise by very much the same mental processes as those which are discoverable in the production of illusory perceptions; and thus a complete psychology of the one class will, at the same time, contain the explanation of the other classes.

The reader is doubtless aware that philosophers have still further extended the idea of illusion by seeking to bring under it beliefs which the common sense of mankind has always adopted and never begun to suspect. Thus, according to the idealist, the popular notion (the existence of which Berkeley, however, denied) of an external world, existing in itself and in no wise dependent on our perceptions of it, resolves itself into a grand illusion of sense.

At the close of our study of illusions we shall return to this point. We shall there inquire into the connection between those illusions which are popularly recognized as such, and those which first come into view or appear to do so (for we must not yet assume that there are such) after a certain kind of philosophic reflection. And some attempt will be made to determine roughly how far the process of dissolving these substantial beliefs of mankind into airy phantasms may venture to go.

For the present, however, these so-called illusions in philosophy will be ignored. It is plain that illusion exists only in antithesis to real knowledge. This last must be assumed as something above all question. And a rough and provisional, though for our purpose sufficiently accurate, demarcation of the regions of the real and illusory seems to coincide with the line which common sense draws between what all normal men agree in holding and what the individual holds, whether temporarily or permanently, in contradiction to this. For our present purpose

the real is that which is true for all. Thus, though physical science may tell us that there is nothing corresponding to our sensations of color in the world of matter and motion which it conceives as surrounding us; yet, inasmuch as to all men endowed with the normal color-sense the same material objects appear to have the same color, we may speak of any such perception as practically true, marking it off from those plainly illusory perceptions which are due to some subjective cause, as, for example, fatigue of the retina.

To sum up: in treating of illusions we shall assume, what science as distinguished from philosophy is bound to assume, namely, that human experience is consistent; that men's perceptions and beliefs fall into a consensus. From this point of view illusion is seen to arise through some exceptional feature in the situation or condition of the individual, which, for the time, breaks the chain of intellectual solidarity which under ordinary circumstances binds the single member to the collective body. Whether the common experience which men thus obtain is rightly interpreted is a question which does not concern us here. For our present purpose, which is the determination and explanation of illusion as popularly understood, it is sufficient that there is this general consensus of belief, and this may provisionally be regarded as at least practically true.

CHAPTER II.

THE CLASSIFICATION OF ILLUSIONS.

IF illusion is the simulation of immediate knowledge, the most obvious mode of classifying illusions would appear to be according to the variety of the knowledge which they simulate.

Now, the popular psychology that floats about in the ordinary forms of language has long since distinguished certain kinds of unreasoned or unreasoned knowledge. Of these the two best known are perception and memory. When I see an object before me, or when I recall an event in my past experience, I am supposed to grasp a piece of knowledge directly, to know something immediately, and not through the medium of something else. Yet I know differently in the two cases. In the first I know by what is called a presentative process, namely, that of sense-perception; in the second I know by a representative process, namely, that of reproduction, or on the evidence of memory. In the one case the object of cognition is present to my perceptive faculties; in the other it is recalled by the power of memory.

Scientific psychology tends, no doubt, to break down some of these popular distinctions. Just as the zoologist sometimes groups together varieties of animals which the unscientific eye would never think of connecting, so the psychologist may analyze mental

operations which appear widely dissimilar to the popular mind, and reduce them to one fundamental process. Thus recent psychology draws no sharp distinction between perception and recollection. It finds in both very much the same elements, though combined in a different way. Strictly speaking, indeed, perception must be defined as a presentative-representative operation. To the psychologist it comes to very much the same thing whether, for example, on a visit to Switzerland, our minds are occupied in *perceiving* the distance of a mountain or in *remembering* some pleasant excursion which we made to it on a former visit. In both cases there is a reinstatement of the past, a reproduction of earlier experience, a process of adding to a present impression a product of imagination—taking this word in its widest sense. In both cases the same laws of reproduction or association are illustrated.

Just as a deep and exhaustive analysis of the intellectual operations thus tends to identify their various forms as they are distinguished by the popular mind, so a thorough investigation of the flaws in these operations, that is to say, the counterfeitings of knowledge, will probably lead to an identification of the essential mental process which underlies them. It is apparent, for example, that, whether a man *projects* some figment of his imagination into the external world, giving it present material reality, or whether (if I may be allowed the term) he *retrojects* it into the dim region of the past, and takes it for a reality that has been, he is committing substantially the same blunder. The source of the illusion in both cases is one and the same.

It might seem to follow from this that a scientific discussion of the subject would overlook the obvious distinction between illusions of perception and those of memory; that it would attend simply to differences in the mode of origination of the illusion, whatever its external form. Our next step, then, would appear to be to determine these differences in the mode of production.

That there are differences in the origin and source of illusion is a fact which has been fully recognized by those writers who have made a special study of sense-illusions. By these the term illusion is commonly employed in a narrow, technical sense, and opposed to hallucination. An illusion, it is said, must always have its starting-point in some actual impression, whereas a hallucination has no such basis. Thus it is an illusion when a man, under the action of terror, takes a stump of a tree, whitened by the moon's rays, for a ghost. It is a hallucination when an imaginative person so vividly pictures to himself the form of some absent friend that, for the moment, he fancies himself actually beholding him. Illusion is thus a partial displacement of external fact by a fiction of the imagination, while hallucination is a total displacement.

This distinction, which has been adopted

by the majority of recent alienists,* is a valuable one, and must not be lost sight of here. It would seem, from a psychological point of view, to be an important circumstance in the genesis of a false perception whether the intellectual process sets out from within or from without. And it will be found, moreover, that this distinction may be applied to all the varieties of error which I propose to consider. Thus, for example, it will be seen further on that a false recollection may set out either from the idea of some actual past occurrence or from a present product of the imagination.

It is to be observed, however, that the line of separation between illusion and hallucination, as thus defined, is a very narrow one. In by far the largest number of hallucinations it is impossible to prove that there is no modicum of external agency co-operating in the production of the effect. It is presumable, indeed, that many, if not all, hallucinations have such a basis of fact. Thus, the madman who projects his internal thoughts outward in the shape of external voices may, for aught we know, be prompted to do so in part by faint impressions coming from the ear, the result of those slight stimulations to which the organ is always exposed, even in profound silence, and which in his case assume an exaggerated intensity. And ever if it is clearly made out that there are hallucinations in the strict sense, that is to say, false perceptions which are wholly due to internal causes, it must be conceded that illusion shades off into hallucination by steps which it is impossible for science to mark. In many cases it must be left an open question whether the error is to be classed as an illusion or as a hallucination.†

For these reasons, I think it best not to make the distinction between illusion and hallucination the leading principle of my classification. However important psychologically, it does not lend itself to this purpose. The distinction must be kept in view and illustrated as far as possible. Accordingly, while in general following popular usage and employing the term illusion as the generic name, I shall, when convenient, recognize the narrow and technical sense of the term as answering to a species co-ordinate with hallucination.

Departing, then, from what might seem the ideally best order of exposition, I propose after all to set out with the simple popular scheme of faculties already referred to. Even

* A history of the distinction is given by Brierre de Boismont, in his work *On Illusions* (translated by R. T. Hulme, 1850). He says that Arnold (1806) first defined hallucination, and distinguished it from illusion. Esquiver, in his work, *Des Maladies Mentales* (1838), may be said to have fixed the distinction. (See Hunt's translation, 1845, p. 111.)

† This fact has been fully recognized by writers on the pathology of the subject; for example, Griesinger, *Mental Pathology and Therapeutics* (London, 1867), p. 84; Baillarger, article, "Des Hallucinations," in the *Mémoires de l'Académie Royale de Médecine*, tom. xii, p. 273, etc.; Wundt *Physiologische Psychologie*, p. 653.

if they are, psychologically considered, identical operations, perception and memory are in general sufficiently marked off by a speciality in the form of the operation. Thus, while memory is the reproduction of something with a special reference of consciousness to its past existence, perception is the reproduction of something with a special reference to its present existence as a part of the presented object. In other words, though largely *representative* when viewed as to its origin, perception is *presentative* in relation to the object which is supposed to be immediately present to the mind at the moment.* Hence the convenience of recognizing the popular classification, and of making it our starting-point in the present case.

All knowledge which has any appearance of being directly reached, immediate, or self-evident, that is to say, of not being inferred from other knowledge, may be divided into four principal varieties: Internal Perception or Introspection of the mind's own feelings; External Perception; Memory; and Belief, in so far as it simulates the form of direct knowledge. The first is illustrated in a man's consciousness of a present feeling of pain or pleasure. The second and the third kinds have already been spoken of, and are too familiar to require illustration. It is only needful to remark here that, under perception, or rather in close conjunction with it, I purpose dealing with the knowledge of others' feelings, in so far as this assumes the aspect of immediate knowledge. The term belief is here used to include expectations and any other kinds of conviction that do not fall under one of the other heads. An instance of a seemingly immediate belief would be a prophetic prevision of a coming disaster, or a man's unreasoned persuasion as to his own powers of performing a difficult task.

It is, indeed, said by many thinkers that there are no legitimate immediate beliefs; that all our expectations and other convictions about things, in so far as they are sound, must repose on other genuinely immediate knowledge, more particularly sense-perception and memory. This difficult question need not be discussed here. It is allowed by all that there is a multitude of beliefs which we hold tenaciously and on which we are ready to act, which, to the mature mind, wear the appearance of intuitive truths, owing their cogency to nothing beyond themselves. A man's belief in his own merits, however it may have been first obtained, is as immediately assured to him as his recognition of a real object in the act of sense-perception. It may be added that many of our every-day working beliefs about the world in which we live, though presumably derived from memory and perception, tend to lose all traces of their origin and to simulate the aspect of intuitions. Thus the proposition that logicians are in the habit

of pressing on our attention, that "Men are mortal," seems, on the face of it, to common sense to be something very like a self-evident truth, not depending on any particular facts of experience.

In calling these four forms of cognition immediate, I must not, however, be supposed to be placing them on the same logical level. It is plain, indeed, to a reflective mind that, though each may be called immediate in this superficial sense, there are perceptible differences in the degree of their immediacy. Thus it is manifest, after a moment's reflection, that expectation, so far as it is just, is not primarily immediate in the sense in which purely presentative knowledge is so, since it can be shown to follow from something else. So a general proposition, though through familiarity and innumerable illustrations it has acquired a self-evident character, is seen with a very little inspection to be less fundamentally and essentially so than the proposition, "I am now feeling pain;" and it will be found that even with respect to memory, when the remembered event is at all remote, the process of cognition approximates to a mediate operation, namely, one of inference. What the relative values of these different kinds of immediate knowledge are is a point which will have to be touched on at the end of our study. Here it must suffice to warn the reader against the supposition that this value is assumed to be identical.

It might seem at a first glance to follow from this four-fold scheme of immediate or quasi-immediate knowledge that there are four varieties of illusion. And this is true in the sense that these four heads cover all the main varieties of illusion. If there are only four varieties of knowledge which can lay any claim to be considered immediate, it must be that every illusion will simulate the form of one of these varieties, and so be referable to the corresponding division.

But though there are conceivably these four species of illusion, it does not follow that there are any actual instances of each class forthcoming. This we cannot determine till we have investigated the nature and origin of illusory error. For example, it might be found that introspection, or the immediate inspection of our own feelings or mental states, does not supply the conditions necessary to the production of such error. And indeed, it is probable that most persons, antecedently to inquiry, would be disposed to say that to fall into error in the observation of what is actually going on in our own minds is impossible.

With the exception of this first division, however, this scheme may easily be seen to answer to actual phenomena. That there are illusions of perception is obvious, since it is to the errors of sense that the term illusion has most frequently been confined. It is hardly less evident that there are illusions of memory. The peculiar difficulty of distinguishing between a past real event and a mere phantom of the imagination, illustrated

* I here touch on the distinction between the psychological and the philosophical view of perception, to be brought out more fully by and by.

in the exclamation, "I either saw it or dreamt it," sufficiently shows that memory is liable to be imposed on. Finally, it is agreed by all that the beliefs we are wont to regard as self-evident are sometimes erroneous. When, for example, an imaginative woman says she knows, by mere intuition, that something interesting is going to happen, say the arrival of a favorite friend, she is plainly running the risk of being self-deluded. So, too, a man's estimate of himself, however valid for him, may turn out to be flagrantly false.

In the following discussion of the subject I shall depart from the above order in so far as to set out with illusions of sense-perception. These are well ascertained, forming, indeed, the best-marked variety. And the explanation of these has been carried much further than that of the others. Hence, according to the rule to proceed from the known to the unknown, there will be an obvious convenience in examining these first of all. After having done this, we shall be in a position to inquire whether there is anything analogous in the region of introspection or internal perception. Our study of the errors of sense-perception will, moreover, prove the best preparation for an inquiry into the nature and mode of production of the remaining two varieties.*

I would add that, in close connection with the first division, illusions of perception, I shall treat the subtle and complicated phenomena of dreams. Although containing elements which ought, according to strictness, to be brought under one of the other heads, they are, as their common appellation, "visions," shows, largely simulations of external and more especially visual, perception.

Dreams are no doubt sharply marked off from illusions of sense-perception by a number of special circumstances. Indeed, it may be thought that they cannot be adequately treated in a work that aims primarily at investigating the illusions of normal life, and should rather be left to those who make the pathological side of the subject their special study. Yet it may, perhaps, be said that in a wide sense dreams are a feature of normal life. And, however this be, they have quite enough in common with other illusions of perception to justify us in dealing with them in close connection with these.

CHAPTER III.

ILLUSIONS OF PERCEPTION: GENERAL.

THE errors with which we shall be concerned in this chapter are those which are commonly denoted by the term illusion, that

* It might even be urged that the order here adopted is scientifically the best, since sense-perception is the earliest form of knowledge, introspected facts being known only in relation to perceived facts. But if the mind's knowledge of its own states is thus later in time, it is earlier in the logical order, that is to say, it is the most strictly representative form of knowledge.

is to say, those of sense. They are sometimes called deceptions of the senses; but this is a somewhat loose expression, suggesting that we can be deceived as to sensation itself, though, as we shall see later on, this is only true in a very restricted meaning of the phrase. To speak correctly, sense-illusions must be said to arise by a simulation of the form of just and accurate perceptions. Accordingly, we shall most frequently speak of them as illusions of perception.

In order to investigate the nature of any kind of error, it is needful to understand the kind of knowledge it imitates, and so we must begin our inquiry into the nature of illusions of sense by a brief account of the psychology of perception; and, in doing this, we shall proceed best by regarding this operation in its most complete form, namely, that of visual perception.

I may observe that in this analysis of perception I shall endeavor to keep to known facts, namely, the psychical phenomena or events which can be seen by the methods of scientific psychology to enter into the mental content called the percept. I do not now inquire whether such an analysis can help us to understand all that is meant by perception. This point will have to be touched later on. Here it is enough to say that, whatever our philosophy of perception may be, we must accept the psychological fact that the concrete mental state in the act of perception is built up out of elements, the history of which can be traced by the methods of mental science.

Psychology of Perception.—Confining ourselves for the present to the mental, as distinguished from the physical, side of the operation, we soon find that perception is not so simple a matter as it might at first seem to be. When a man on a hot day looks at a running stream and "sees" the delicious coolness, it is not difficult to show that he is really performing an act of mental synthesis or imaginative construction. To the sense-impression* which his eye now gives him, he adds something which past experience has bequeathed to his mind. In perception, the material of sensation is acted on by the mind, which embodies in its present attitude all the results of its past growth. Let us look at this process of synthesis a little more closely.

When a sensation arises in the mind, it may, under certain circumstances, go unattended to. In that case there is no perception. The sensation floats in the dim outer regions of consciousness as a vague feeling, the real nature and history of which are unknown. This remark applies not only to the undefined bodily sensations that are always oscillating about the threshold of

* Here and elsewhere I use the word "impression" for the whole complex of sensation which is present at the moment. It may, perhaps, not be unnecessary to add that, in employing this term, I am making no assumption about the independent existence of external objects.

obscure consciousness, but to the higher sensations connected with the special organs of perception. The student in optics soon makes the startling discovery that his field of vision has all through his life been haunted with weird shapes which have never troubled the serenity of his mind just because they have never been distinctly attended to.

The immediate result of this process of directing the keen glance of attention to a sensation is to give it greater force and distinctness. By attending to it we discriminate it from other feelings present and past, and classify it with like sensations previously received. Thus, if I receive a visual impression of the color orange, the first consequence of attending to it is to mark it off from other color-impressions, including those of red and yellow. And in recognizing the peculiar quality of the impression by applying to it the term orange, I obviously connect it with other similar sensations called by the same name. If a sensation is perfectly new, there cannot, of course, be this process of classifying, and in this case the closely related operation of discriminating it from other sensations is less exactly performed. But it is hardly necessary to remark that, in the mind of the adult, under ordinary circumstances, no perfectly new sensation ever occurs.

When the sensation, or complex sensation, is thus defined and recognized, there follows the process of interpretation, by which I mean the taking up of the impression as an element into the complex mental state known as a percept. Without going into the philosophical question of what this process of synthesis exactly means, I may observe that, by common consent, it takes place to a large extent by help of a reproduction of sensations of various kinds experienced in the past. That is to say, the details in this act of combination are drawn from the store of mental recollections to which the growing mind is ever adding. In other words, the percept arises through a fusion of an actual sensation with mental representations or "images" of sensation.* Every element of the object that we thus take up in the act of perception, or put into the percept, as its actual size, distance, and so on, will be found to make itself known to us through mental images or revivals of past experiences, such as those we have in handling the object, moving to and from it, etc. It follows that if this is an essential ingredient in the act of

perception, the process closely resembles an act of inference; and, indeed, Helmholtz distinctly calls the perception of distance an unconscious inference or a mechanically performed act of judgment.

I have hinted that these recovered sensations include the feelings we experience in connection with muscular activity, as in moving our limbs, resisting or lifting heavy bodies, and walking to a distant object. Modern psychology refers the eye's instantaneous recognition of the most important elements of an object (its essential or "primary" qualities) to a reinstatement of such simple experiences as these. It is, indeed, these reproductions which are supposed to constitute the substantial background of our percepts.

Another thing worth noting with respect to this process of filling up a sense-impression is that it draws on past sensations of the eye itself. Thus, when I look at the figure of an acquaintance from behind, my reproductive visual imagination supplies a representation of the impressions I am wont to receive when the more interesting aspect of the object, the front view, is present to my visual sense.*

We may distinguish between different steps in the full act of visual recognition. First of all comes the construction of a material object of a particular figure and size, and at a particular distance; that is to say, the recognition of a tangible thing having certain simple space-properties, and holding a certain relation to other objects, and more especially our own body, in space. This is the bare perception of an object, which always takes place even in the case of perfectly new objects, provided they are seen with any degree of distinctness. It is to be added that the reference of a sensation of light or color to such an object involves the inclusion of a quality answering to the sensation, as brightness, or blue color, in the thing thus intuited.

This part of the process of filling in, which is the most instantaneous, automatic, and unconscious, may be supposed to answer to the most constant and therefore the most deeply organized connections of experience; for, speaking generally, we never have an impression of color, except when there are circumstances present which are fitted to yield us those simple muscular and tactual experiences through which the ideas of a particular form, size, etc., are pretty certainly obtained.

The second step in this process of presentative construction is the recognition of an object as one of a class of things, for example, oranges, having certain special qualities, as a particular taste. In this step the

* Psychological usage has now pretty well substituted the term "image" for "idea," in order to indicate an individual (as distinguished from a general) representation of a sensation or percept. It might, perhaps, be desirable to go further in this process of differentiating language, and to distinguish between a sensational image, e.g. the representation of a color, and a perceptual image, as the representation of a colored object. It may be well to add that, in speaking of a fusion of an image and a sensation, I do not mean that the former exists apart for a single instant. The term "fusion" is used figuratively to describe the union of the two sides or aspects of a complete sensation.

* This impulse to fill in visual elements not actually present is strikingly illustrated in people's difficulty in recognizing the gap in the field of vision answering to the insensitive "blind" spot on the retina. (See Helmholtz, *Physiologische Optik*, p. 573, et seq.)

connections of experience are less deeply organized, and so we are able to some extent, by reflection, to recognize it as a kind of intellectual working up of the materials supplied us by the past. It is to be noted that this process of recognition involves a compound operation of classifying impressions as distinguished from that simple operation by which a single impression, such as a particular color, is known. Thus the recognition of such an object as an orange takes place by a rapid classing of a multitude of passive sensations of color, light, and shade, and those active or muscular sensations which are supposed to enter into the visual perception of form.

A still less automatic step in the process of visual recognition is that of identifying individual objects, as Westminster Abbey, or a friend, John Smith. The amount of experience that is here reproduced may be very large, as in the case of recognizing a person with whom we have had a long and intimate acquaintance.

If the recognition of an object as one of a class, for example, an orange, involves a compound process of classing impressions, that of an individual object involves a still more complicated process. The identification of a friend, simple as this operation may at first appear, really takes place by a rapid classing of all the salient characteristic features which serve as the visible marks of that particular person.

It is to be noted that each kind of recognition, specific and individual, takes place by a consciousness of likeness amid unlikeness. It is obvious that a new individual object has characters not shared in by other objects previously inspected. Thus, we at once class a man with a dark-brown skin, wearing a particular garb, as a Hindoo, though he may differ in a host of particulars from the other Hindoos that we have observed. In thus instantly recognizing him as a Hindoo, we must, it is plain, attend to the points of similarity, and overlook for the instant the points of dissimilarity. In the case of individual identification, the same thing happens. Strictly speaking, no object ever appears exactly the same to us on two occasions. Apart from changes in the object itself, especially in the case of living beings, there are varying effects of illumination, of position in relation to the eye, of distance, and so on, which very distinctly affect the visual impression at different times. Yet the fact of our instantly recognizing a familiar object in spite of these fluctuations of appearance, proves that we are able to overlook a very considerable amount of diversity when a certain amount of likeness is present.

It is further to be observed that in these last stages of perception we approach the boundary line between perception and inference. To recognize an object as one of a class is often a matter of conscious reflection and judgment, even when the class is constituted by obvious material qualities which

the senses may be supposed to apprehend immediately. Still more clearly does perception pass into inference when the class is constituted by less obvious qualities, which require a careful and prolonged process of recollection, discrimination, and comparison, for their recognition. Thus, to recognize a man by certain marks of gesture and manner as a military man or a Frenchman, though popularly called a perception, is much more of an unfolded process of conscious inference. And what applies to specific recognition applies still more forcibly to individual recognition, which is often a matter of very delicate conscious comparison and judgment. To say where the line should be drawn here between perception and observation on the one hand, and inference on the other, is clearly impossible. Our whole study of the illusions of perception will serve to show that the one shades off into the other too gradually to allow of our drawing a hard and fast line between them.

Finally, it is to be noted that these last stages of perception bring us near the boundary line which separates objective experience as common and universal, and subjective or variable experience as confined to one or to a few. In the bringing of the object under a certain class of objects there is clearly room for greater variety of individual perception. For example, the ability to recognize a man as a Frenchman turns on a special kind of previous experience. And this transition from the common or universal to the individual experience is seen yet more plainly in the case of individual recognition. To identify an object, say a particular person, commonly presupposes some previous experience or knowledge of this object, and the existence in the past of some special relation of the recognizer to the recognized, if only that of an observer. In fact, it is evident that in this mode of recognition we have the transition from common perception to individual recollection.*

While we may thus distinguish different steps in the process of visual recognition, we may make a further distinction, marking off a passive and an active stage in the process. The one may be called the stage of preperception, the other that of perception proper.† In the first the mind holds itself in a passive attitude, except in so far as the energies of external attention are involved. The impression here awakens the mental images which answer to past experiences according to the well-known laws of association. The interpretative image which is to transform the impression into a percept is now being formed by a mere process of suggestion.

When the image is thus formed, the mind

* This relation will be more fully discussed under the head of "Memory."

† I adopt this distinction from Dr. J. Hughlings Jackson. See his articles, "On Affections of Speech from Diseases of the Brain," in *Brain*, Nos. iii. and vii. The second stage might conveniently be named *apperception*, but for the special philosophical associations of the term.

may be said to enter upon a more active stage, in which it now views the impression through the image, or applies this as a kind of mold or framework to the impression. This appears to involve an intensification of the mental image, transforming it from a representative to a presentative mental state, making it approximate somewhat to the full intensity of the sensation. In many of our instantaneous perceptions these two stages are indistinguishable to consciousness. Thus, in most cases, the recognition of size, distance, etc., takes place so rapidly that it is impossible to detect the two phases here separated. But in the classification of an object, or the identification of an individual thing, there is often an appreciable interval between the first reception of the impression and the final stage of complete recognition. And here it is easy to distinguish the two stages of preperception and perception. The interpretative image is slowly built up by the operation of suggestion, at the close of which the impression is suddenly illumined as by a flash of light, and takes a definite, precise shape.

Now, it is to be noted that the process of preperception will be greatly aided by any circumstance that facilitates the construction of the particular interpretative image required. Thus, the more frequently a similar process of perception has been performed in the past, the more ready will the mind be to fall into the particular way of interpreting the impression. As G. H. Lewes well remarks, "The artist sees details where to other eyes there is a vague or confused mass; the naturalist sees an animal where the ordinary eye only sees a form."* This is but one illustration of the seemingly universal mental law, that what is repeatedly done will be done more and more easily.

The process of preperception may be shortened, not only by means of a *permanent* disposition to frame the required interpretative scheme, the residuum of past like processes, but also by means of any *temporary* disposition pointing in the same direction. If, for example, the mind of a naturalist has just been occupied about a certain class of bird, that is to say, if he has been dwelling on the *mental image* of this bird, he will recognize one at a distance more quickly than he would otherwise have done. Such a simple mental operation as the recognition of one of the less common flowers, say a particular orchid, will vary in duration according as we have or have not been recently forming an image of this flower. The obvious explanation of this is that the mental image of an object bears a very close resemblance to the corresponding percept, differing from it, indeed, in degree only, that is to say, through the fact that it involves no actual sensation. Here again we see illustrated a general psychological law, namely, that what the mind has recently

done, it tends (within certain limits) to go on doing.

It is to be noticed, further, that the perception of a single object or event is rarely an isolated act of the mind. We recognize and understand the things that surround us through their relations one to another. Sometimes the adjacent circumstances and events suggest a definite expectation of the new impression. Thus, for example, the sound of a gun heard during a walk in the country is instantly interpreted by help of suggestions due to the previous appearance of the sportsman, and the act of raising the gun to his shoulder. It may be added that the verbal suggestions of others act very much like the suggestions of external circumstances. If I am told that a gun is going to be fired, my mind is prepared for it just as though I saw the sportsman.*

More frequently the effect of such surrounding circumstances is to give an air of familiarity to the new impression, to shorten the interval in which the required interpretative image is forthcoming. Thus, when traveling in Italy, the visual impression answering to a ruined temple or a bareheaded friar is construed much more rapidly than it would be elsewhere, because of the attitude of mind due to the surrounding circumstances. In all such cases the process of preperception connected with a given impression is effected more or less completely by the suggestions of other and related impressions.

It follows from all that has been just said that our minds are never in exactly the same state of readiness with respect to a particular process of perceptual interpretation. Sometimes the meaning of an impression flashes on us at once, and the stage of preperception becomes evanescent. At other times the same impression will fail for an appreciable interval to divulge its meaning. These differences are, no doubt, due in part to variations in the state of attention at the moment; but they depend as well on fluctuations in the degree of the mind's readiness to look at the impression in the required way.

In order to complete this slight analysis of perception, we must look for a moment at its physical side, that is to say, at the nervous actions which are known or supposed with some degree of probability to accompany it.

The production of the sensation is known to depend on a certain external process, namely, the action of some stimulus, as light, on the sense-organ, which stimulus has its point of departure in the object, such as it is conceived by physical science. The sensation arises when the nervous process is transmitted through the nerves to the conscious center, often spoken of as the sensorium, the exact seat of which is still a matter of some debate.

The intensification of the sensation by the

* *Problems of Life and Mind*, third series, p. 107. This writer employs the word "preperception" to denote this effect of previous perception.

* Such verbal suggestion, moreover, acting through a sense-impression, has something of that vividness of effect which belongs to all excitation of mental images by external stimuli.

reaction of attention is supposed to depend on some re-enforcement of the nervous excitation in the sensory center proceeding from the motor regions, which are hypothetically regarded as the center of attention.* The classification of the impression, again, is pretty certainly correlated with the physical fact that the central excitation calls into activity elements which have already been excited in the same way.

The nervous counterpart of the final stage of perception, the synthesis of the sensation and the mental representation, is not clearly ascertained. A sensation clearly resembles a mental image in quality. It is most obviously marked off from the image by its greater vividness or intensity. Agreeably to this view, it is now held by a number of eminent physiologists and psychologists that the nervous process underlying a sensation occupies the same central region as that which underlies the corresponding image. According to this theory, the two processes differ in their degree of energy only, this difference being connected with the fact that the former involves, while the latter does not involve, the peripheral region of the nervous system. Accepting this view as on the whole well founded, I shall speak of an ideational, or rather an imaginal, and a sensational nervous process, and not of an ideational and a sensational center.†

The special force that belongs to the representative element in a percept, as compared with that of a pure "perceptual" image,‡ is probably connected with the fact that, in the case of actual perception, the nervous process underlying the act of imaginative construction is organically united to the initial sensational process, of which indeed it may be regarded as a continuation.

For the physical counterpart of the two stages in the interpretative part of perception, distinguished as the passive stage of pre-perception, and the active stage of perception proper, we may, in the absence of certain knowledge, fall back on the hypothesis put forward by Dr. J. Hughlings Jackson, in the articles in *Brain* already referred to, namely, that the former answers to an action of the right hemisphere of the brain, the latter to a subsequent action of the left hemisphere. The expediting of the process of pre-perception in those cases where it has frequently been performed before, is clearly an illustration of the organic law that every function is improved by exercise. And the temporary disposition to perform the process due to recent imaginative activity, is explained at once

on the physical side by the supposition that an actual perception and a perceptual image involve the activity of the same nervous tracts. For, assuming this to be the case, it follows, from a well-known organic law, that a recent excitation would leave a temporary disposition in these particular structures to resume that particular mode of activity.

What has here been said about visual perception will apply, *mutatis mutandis*, to other kinds. Although the eye is the organ of perception *par excellence*, our other senses are also avenues by which we intuit and recognize objects. Thus touch, especially when it is finely developed as it is in the blind, gives an immediate knowledge of objects—a more immediate knowledge, indeed, of their fundamental properties than sight. What makes the eye so vastly superior to the organ of touch as an instrument of perception, is first of all the range of its action, taking in simultaneously a large number of impressions from objects at a distance as well as near; and secondly, though this may seem paradoxical, the fact that it gives us so much indirectly, that is, by way of association and suggestion. This is the interesting side of visual perception, that, owing to the vast complex of distinguishable sensations of light and color of various qualities and intensities, together with the muscular sensations attending the varying positions of the organ, the eye is able to recognize at any instant a whole external world with its fundamental properties and relations. The ear comes next to the eye in this respect, but only after a long interval, since its sensations (even in the case of musical combinations) do not simultaneously order themselves in an indefinitely large group of distinguishable elements, and since even the comparatively few sensations which it is capable of simultaneously receiving, being altogether passive—that is to say, having no muscular accompaniments—impart but little and vague information respecting the external order. It is plain, then, that in the study of illusion, where the indirectly known elements are the thing to be considered, the eye, and after this the ear, will mostly engage our attention.*

* Touch gives much by way of interpretation only when an individual object, for example a man's hat, is recognized by aid of this sense alone, in which case the perception distinctly involves the reproduction of a complete visual percept. I may add that the organ of smell comes next to that of hearing, with respect both to the range and definiteness of its simultaneous sensations, and to the amount of information furnished by these. A rough sense of distance as well as of direction is clearly obtainable by means of this organ. There seems to me no reason why an animal endowed with fine olfactory sensibility, and capable of an analytic separation of sense-elements, should not gain a rough perception of an external order much more complete than our auditory perception, which is necessarily so fragmentary. This supposition appears, indeed, to be the necessary complement to the idea first broached, so far as I am aware, by Professor Croom Robertson, that to such animals, visual perception consists in a reference to a system of muscular feelings defined and bounded by strong olfactory sensations, rather than by tactual sensations as in our case.

* See Wundt, *Physiologische Psychologie*, p. 723.

† For a confirmation of the view adopted in the text, see Professor Bain, *The Senses and the Intellect*, Part II. ch. i. sec. 8; Herbert Spencer, *Principles of Psychology*, vol. i. p. 234, *et passim*; Dr. Ferrier, *The Functions of the Brain*, p. 258, *et seq.*; Professor Wundt, *op. cit.*, pp. 644, 645; G. H. Lewes, *Problems of Life and Mind*, vol. v. p. 445, *et seq.* For an opposite view, see Dr. Carpenter, *Mental Physiology*, fourth edit., p. 220, etc.; Dr. Maudsley, *The Physiology of Mind*, ch. v. p. 259, etc.

‡ See note, p. 7.

So much it seemed needful to say about the mechanism of perception, in order to understand the slight disturbances of this mechanism that manifest themselves in sense-illusion. It may be added that our study of these illusions will help still further to elucidate the exact nature of perception. Normal mental life, as a whole, at once illustrates, and is illustrated by, abnormal. And while we need a rough provisional theory of accurate perception in order to explain illusory perception at all, the investigation of this latter cannot fail to verify and even render more complete the theory which it thus temporarily adopts.

Illusions of Perception.—With this brief psychological analysis of perception to help us, let us now pass to the consideration of the errors incident to the process, with a view to classify them according to their psychological nature and origin.

And here there naturally arises the question, How shall we define an illusion of perception? When trying to fix the definition of illusion in general, I practically disposed of this question. Nevertheless, as the point appears to me to be of some importance, I shall reproduce and expand one or two of the considerations then brought forward.

It is said by certain philosophers that perception, as a whole, is an illusion, inasmuch as it involves the fiction of a real thing independent of mind, yet somehow present to it in the act of sense-perception. But this is a question for philosophy, not for science. Science, including psychology, assumes that in perception there is something real, without inquiring what it may consist of, or what its meaning may be. And though in the foregoing analysis of perception, viewed as a complex mental phenomenon or psychical process, I have argued that a percept gets its concrete filling up out of elements of conscious experience or sensations, I have been careful not to contend that the particular elements of feeling thus represented are the *object* of perception or the thing perceived. It may be that what we mean by a single object with its assemblage of qualities is much more than any number of such sensations; and it must be confessed that, on the face of it, it seems to be much more. And however this be, the question, What is meant by object; and is the common persuasion of the existence of such an entity in the act of perception accurate or illusory? must be handed over to philosophy.

While in the following examination of sense-illusions we put out of sight what certain philosophers say about the illusoriness of perception as a whole, we shall also do well to leave out of account what physical science is sometimes supposed to tell us respecting a constant element of illusion in perception. The physicist, by reducing all external changes to "modes of motion," appears to leave no room in his world-mechanism for the secondary qualities of bodies, such as light and heat, as popularly con-

ceived. Yet, while allowing this, I think we may still regard the attribution of qualities like color to objects as in the main correct and answering to a real fact. When a person says an object is red, he is understood by everybody as affirming something which is true or false, something therefore which either involves an external fact or is illusory. It would involve an external fact whenever the particular sensation which he receives is the result of a physical action (ether vibrations of a certain order), which would produce a like sensation in anybody else in the same situation and endowed with the normal retinal sensibility. On the other hand, an illusory attribution of color would imply that there is no corresponding physical agency at work in the case, but that the sensation is connected with exceptional individual conditions, as, for example, altered retinal sensibility.

We are now, perhaps, in a position to frame a rough definition of an illusion of perception as popularly understood. A large number of such phenomena may be described as consisting in the formation of percepts or quasi-percepts in the minds of individuals under external circumstances which would not give rise to similar percepts in the case of other people.

A little consideration, however, will show that this is not an adequate definition of what is ordinarily understood by an illusion of sense. There are special circumstances which are fitted to excite a momentary illusion in all minds. The optical illusions due to the reflection and refraction of light are not peculiar to the individual, but arise in all minds under precisely similar external conditions.

It is plain that the illusoriness of a perception is in these cases determined in relation to the sense-impressions of other moments and situations, or to what are presumably better percepts than the present one. Sometimes this involves an appeal from one sense to another. Thus, there is the process of verification of sight by touch, for example, in the case of optical images, a mode of perception which, as we have seen, gives a more direct cognition of external quality. Conversely, there may occasionally be a reference from touch to sight, when it is a question of discriminating two points lying very close to one another. Finally, the same sense may correct itself, as when the illusion of the stereoscope is corrected by afterward looking at the two separate pictures.

We may thus roughly define an illusion of perception as consisting in the formation of a quasi-percept which is peculiar to an individual, or which is contradicted by another and presumably more accurate percept. Or, if we take the meaning of the word common to include both the universal as contrasted with the individual experience, and the permanent, constant, or average, as distinguished from the momentary and variable percept, we may still briefly describe an illusion of

perception as a deviation from the common or collective experience.

Sources of Sense-Illusion.—Understanding sense-illusion in this way, let us glance back at the process of perception in its several stages or aspects, with the object of discovering what room occurs for illusion.

It appears at first as if the preliminary stages—the reception, discrimination, and classification of an impression—would not offer the slightest opening for error. This part of the mechanism of perception seems to work so regularly and so smoothly that one can hardly conceive a fault in the process. Nevertheless, a little consideration will show that even here all does not go on with unerring precision.

Let us suppose that the very first step is wanting—distinct attention to an impression. It is easy to see that this will favor illusion by leading to a confusion of the impression. Thus the timid man will more readily fall into the illusion of ghost-seeing than a cool-headed observant man, because he is less attentive to the actual impression of the moment. This inattention to the sense-impression will be found to be a great co-operating factor in the production of illusions.

But if the sensation is properly attended to, can there be error through a misapprehension of what is actually in the mind at the moment? To say that there can may sound paradoxical, and yet in a sense this is demonstrable. I do not mean that there is an observant mind behind and distinct from the sensation, and failing to observe it accurately through a kind of mental short-sightedness. What I mean is that the usual psychical effect of the incoming nervous process may to some extent be counteracted by a powerful reaction of the centers. In the course of our study of illusions, we shall learn that it is possible for the quality of an impression, as, for example, of a sensation of color, to be appreciably modified when there is a strong tendency to regard it in one particular way.

Postponing the consideration of these, we may say that certain illusions appear clearly to take their start from an error in the process of classifying or identifying a present impression. On the physical side, we may say that the first stages of the nervous process, the due excitation of the sensory center in accordance with the form of the incoming stimulation and the central reaction involved in the recognition of the sensation, are incomplete. These are so limited and comparatively unimportant a class, that it will be well to dispose of them at once.

Confusion of the Sense-Impression.—The most interesting case of such an error is where the impression is unfamiliar and novel in character. I have already remarked that in the mental life of the adult perfectly new sensations never occur. At the same time, comparatively novel impressions sometimes arise. Parts of the sensitive surface of the body which rarely undergo stimulation are sometimes acted on, and at other times they

receive partially new modes of stimulation. In such cases it is plain that the process of classing the sensation or recognizing it is not completed. It is found that whenever this happens there is a tendency to exaggerate the intensity of the sensation. The very fact of unfamiliarity seems to give to the sensation a certain exciting character. As something new and strange, it for the instant slightly agitates and discomposes the mind. Being unable to classify it with its like, we naturally magnify its intensity, and so tend to ascribe it to a disproportionately large cause.

For instance, a light bandage worn about the body at a part usually free from pressure is liable to be conceived as a weighty mass. The odd sense of a big cavity in the mouth, which we experience just after the loss of a tooth, is probably another illustration of this principle. And a third example may also be supplied from the recollection of the dentist's patient, namely, the absurd imagination which he tends to form as to what is actually going on in his mouth when a tooth is being bored by a modern rotating drill. It may be found that the same principle helps to account for the exaggerated importance which we attach to the impressions of our dreams.

It is evident that all indistinct impressions are liable to be wrongly classed. Sensations answering to a given color or form, are, when faint, easily confused with other sensations, and so an opening occurs for illusion. Thus, the impressions received from distant objects are frequently misinterpreted, and, as we shall see by and by, it is in this region of hazy impression that imagination is wont to play its most startling pranks.

It is to be observed that the illusions arising from wrong classification will be more frequent in the case of those senses where discrimination is low. Thus, it is much easier in a general way to confuse two sensations of smell than two sensations of color. Hence the great source of such errors is to be found in that mass of obscure sensation which is connected with the organic processes, as digestion, respiration, etc., together with those varying tactual and motor feelings which result from what is called the subjective stimulation of the tactual nerves, and from changes in the position and condition of the muscles. Lying commonly in what is known as the sub-conscious region of mind, undiscriminated, vague, and ill-defined, these sensations, when they come to be specially attended to, readily get misapprehended, and so lead to illusion, both in waking life and in sleep. I shall have occasion to illustrate this later on.

With these sensations, the result of stimulations coming from remote parts of the organism, may be classed the ocular impressions which we receive in indirect vision. When the eye is not fixed on an object, the impression, involving the activity of some peripheral region of the retina, is compara-

tively indistinct. This will be much more the case when the object lies at a distance for which the eye is not at the time accommodated. And in these circumstances, when we happen to turn our attention to the impression, we easily misapprehend it, and so fall into illusion. Thus, it has been remarked by Sir David Brewster, in his *Letters on Natural Magic* (letter vii.), that when looking through a window at some object beyond, we easily suppose a fly on the window-pane to be a larger object, as a bird, at a greater distance.*

While these cases of a confusion or a wrong classification of the sensation are pretty well made out, there are other illusions or quasi-illusions respecting which it is doubtful whether they should be brought under this head. For example, it was found by Weber, that when the legs of a pair of compasses are at a certain small distance apart they will be felt as two by some parts of the tactual surface of the body, but only as one by other parts. How are we to regard this discrepancy? Must we say that in the latter case there are two sensations, only that, being so similar, they are confused one with another? There seems some reason for so doing, in the fact that, by a repeated exercise of attention to the experiment, they may afterwards be recognized as two.

We here come on the puzzling question, How much in the character of the sensation must be regarded as the necessary result of the particular mode of nervous stimulation at the moment, together with the laws of sensibility, and how much must be put down to the reaction of the mind in the shape of attention and discrimination? For our present purpose we may say that, whenever a deliberate effort of attention does not suffice to alter the character of a sensation, this may be pretty safely regarded as a net result of the nervous process, and any error arising may be referred to the later stages of the process of perception. Thus, for example, the taking of the two points of a pair of compasses for one, where the closest attention does not discover the error, is best regarded as arising, not from a confusion of the sense-impression, but from a wrong interpretation of a sensation, occasioned by an overlooking of the limits of local discriminative sensibility.

Misinterpretation of the Sense-Impression.— Enough has been said, perhaps, about those errors of perception which have their root in the initial process of sensation. We may now pass to the far more important class of illusions which are related to the later stages

of perception, that is to say, the process of interpreting the sense-impression. Speaking generally, one may describe an illusion of perception as a misinterpretation. The wrong kind of interpretative mental image gets combined with the impression, or, if with Helmholtz we regard perception as a process of "unconscious inference," we may say that these illusions involve an unconscious fallacious conclusion. Or, looking at the physical side of the operation, it may be said that the central course taken by the nervous process does not correspond to the external relations of the moment.

As soon as we inspect these illusions of interpretation, we see that they fall into two divisions, according as they are connected with the process of *suggestion*, that is to say, the formation of the interpretative image so far as determined by links of association with the actual impression, or with an independent process of *preperception* as explained above. Thus, for example, we fall into the illusion of hearing two voices when our shout is echoed back, just because the second auditory impression irresistibly calls up the image of a second shouter. On the other hand, a man experiences the illusion of seeing specters of familiar objects just after exciting his imagination over a ghost-story, because the mind is strongly predisposed to frame this kind of percept. The first class of illusions arises from without, the sense-impression being the starting-point, and the process of preperception being controlled by this. The second class arises rather from within, from an independent or spontaneous activity of the imagination. In the one case the mind is comparatively passive; in the other it is active, energetically reacting on the impression, and impatiently anticipating the result of the normal process of preperception. Hence I shall, for brevity's sake, commonly speak of them as Passive and Active Illusions.*

I may, perhaps, illustrate these two classes of illusion by the simile of an interpreter poring over an old manuscript. The first would be due to some peculiarity in the document misleading his judgment, the second to some caprice or preconceived notion in the interpreter's mind.

It is not difficult to define conjecturally the physiological conditions of these two large classes of illusion. On the physical side, an illusion of sense, like a just perception, is the result of a fusion of the nervous process answering to a sensation with a nervous process answering to a mental image. In the case of passive illusions, this fusion may be said to take place in consequence of some point of connection between the two. The existence of such a connection appears to be involved in the very fact of suggestion, and may be said to be the organic result of frequent conjunctions of the two parts of the

* They might also be distinguished as objective and subjective illusions, or as illusions *a posteriori* and illusions *a priori*.

* It may be said, perhaps, that the exceptional direction of attention, by giving an unusual intensity to the impression, causes us to exaggerate it just as in the case of a novel sensation. An effort of attention directed to any of our vague bodily sensations easily leads us to magnify its cause. A similar confusion may arise even in direct vision, when the objects are looked at in a dim light, through a want of proper accommodation. (See Sir D. Brewster, *op. cit.*, letter i.)

nervous operation in our past history. In the case of active illusions, however, which spring rather from the independent energy of a particular mode of the imagination, this point of organic connection is not the only or even the main thing. In many cases, as we shall see, there is only a faint shade of resemblance between the present impression and the mental image with which it is overlaid. The illusions dependent on vivid expectation thus answer much less to an objective conjunction of past experiences than to a capricious subjective conjunction of mental images. Here, then, the fusion of nervous processes must have another cause. And it is not difficult to assign such a cause. The antecedent activity of imagination doubtless involves as its organic result a powerful temporary disposition in the nervous structures concerned to go on acting. In other words, they remain in a state of sub-excitation, which can be raised to full excitation by a slight additional force. The more powerful this disposition in the centers involved in the act of imagination, the less the additional force of external stimulus required to excite them to full activity.

Considering the first division, passive illusions, a little further, we shall see that they may be broken up into two sub-classes, according to the causes of the errors. In a general way we assume that the impression always answers to some quality of the object which is perceived, and varies with this; that, for example, our sensation of color invariably represents the quality of external color which we attribute to the object. Or, to express it physically, we assume that the external force acting on the sense-organ invariably produces the same effect, and that the effect always varies with the external cause. But this assumption, though true in the main, is not perfectly correct. It supposes that the organic conditions are constant and that the organic process faithfully reflects the external operation. Neither of these suppositions is strictly true. Although in general we may abstract from the organism and view the relation between the external fact and the mental impression as direct, we cannot always do so.

This being so, it is possible for errors of perception to arise through peculiarities of the nervous organization itself. Thus, as I have just observed, sensibility has its limits, and these limits are the starting-point in a certain class of widely shared or *common* illusions. An example of this variety is the taking of the two points of a pair of compasses for one by the hand, already referred to. Again, the condition of the nervous structures varies indefinitely, so that one and the same stimulus may, in the case of two individuals or of the same individual at different times, produce widely unlike modes of sensation. Such variations are clearly fitted to lead to gross *individual* errors as to the external cause of the sensation. Of this sort is the illusory sense of temperature which we often

experience through a special state of the organ employed.

While there are these errors of interpretation due to some peculiarity of the organization, there are others which involve no such peculiarity, but arise through the special character or exceptional conformation of the environment at the moment. Of this order are the illusions connected with the reflection of light and sound. We may, perhaps, distinguish the first sub-class as organically conditioned illusions, and the second as extra-organically determined illusions. It may be added that the latter are roughly describable as common illusions. They thus answer in a measure to the first variety of organically conditioned illusions, namely, those connected with the limits of sensibility. On the other hand, the active illusions, being essentially individual or subjective, may be said to correspond to the other variety of this class—those connected with variations of sensibility.

Our scheme of sense-illusions is now complete. First of all, we shall take up the passive illusions, beginning with those which are conditioned by special circumstances in the environment. And finally, we shall separately consider what I have called the active illusions of sense.

It is to be observed that these illusions of perception properly so called, namely, the errors arising from a wrong interpretation of an impression, and, not from a confusion of one impression with another, are chiefly illustrated in the region of the two higher senses, sight and hearing. For it is here, as we have seen, that the interpretative imagination has most work to do in evolving complete percepts of material, tangible objects, having certain relations in space, out of a limited and homogeneous class of sensations, namely, those of light and color, and of sound. As I have before observed, tactual perception, in so far as it is the recognition of an object of a certain size, hardness, and distance from our body, involves the least degree of interpretation, and so offers little room for error; it is only when tactual perception amounts to the *recognition* of an individual object, clothed with secondary as well as primary qualities, that an opening for palpable error occurs.

With respect, however, to the first sub-class of these illusions, namely, those arising from organic peculiarities which give a twist, so to speak, to the sensation, no very marked contrast between the different senses presents itself. So that in illustrating this group we shall be pretty equally concerned with the various modes of perception connected with the different senses.

It may be said once for all that in thus marking off from one another certain groups of illusion, I am not unmindful of the fact that these divisions answer to no very sharp natural distinctions. In fact, it will be found that one class gradually passes into the other, and that the different characteristics

here separated often combine in a most perplexing way. All that is claimed for this classification is that it is a convenient mode of mapping out the subject.

CHAPTER IV.

ILLUSIONS OF PERCEPTION—*continued.*

A. Passive Illusions (a) as determined by the Organism.—In dealing with the illusions which are related to certain peculiarities in the nervous organism and the laws of sensibility, I shall commence with those which are connected with certain limits of sensibility.

Limits of Sensibility.—To begin with, it is known that the sensation does not always answer to the external stimulus in its degree or intensity. Thus, a certain amount of stimulation is necessary before any sensation arises. And this will, of course, be greater when there is little or no attention directed to the impression, that is to say, no co-operating central reaction. Thus it happens that slight stimuli go overlooked, and here illusion may have its starting-point. The most familiar example of such slight errors is that of movement. When we are looking at objects, our ocular muscles are apt to execute very slight movements which escape our notice. Hence we tend, under certain circumstances, to carry over the retinal result of the movement, that is to say, the impression produced by a shifting of the parts of the retinal image to new nervous elements, to the object itself, and so to transform a "subjective" into an "objective" movement. In a very interesting work on apparent or illusory movements, Professor Hoppe has fully investigated the facts of such slight movements, and endeavored to specify their causes.*

Again, even when the stimulus is sufficient to produce a conscious impression, the degree of the feeling may not represent the degree of the stimulus. To take a very inconspicuous case, it is found by Fechner that a given increase of force in the stimulus produces a less amount of difference in the resulting sensations when the original stimulus is a powerful one than when it is a feeble one. It follows from this, that differences in the degree of our sensations do not exactly cor-

respond to objective differences. For example, we tend to magnify the differences of light among objects, all of which are feebly illuminated, that is to say, to set them much more removed from one another in point of brightness than when they are more strongly illuminated. Helmholtz relates that, owing to this tendency, he has occasionally caught himself, on a dark night, entertaining the illusion that the comparatively bright objects visible in twilight were self-luminous.*

Again, there are limits to the conscious separation of sensations which are received together, and this fact gives rise to illusion. In general, the number of distinguishable sensations answers to the number of external causes; but this is not always the case, and here we naturally fall into the error of mistaking the number of the stimuli. Reference has already been made to this fact in connection with the question whether consciousness can be mistaken as to the character of a present feeling.

The case of confusing two impressions when the sensory fibers involved are very near one another, has already been alluded to. Both in touch and in sight we always take two or more points for one when they are only separated by an interval that falls below the limits of local discrimination. It seems to follow from this that our perception of the world as a continuum, made up of points perfectly continuous one with another, may, for what we know, be illusory. Supposing the universe to consist of atoms separated by very fine intervals, then it is demonstrable that it would appear to our sensibility as a continuum, just as it does now.†

Two or more simultaneous sensations are indistinguishable from one another, not only when they have nearly the same local origin, but under other circumstances. The blending of partial sensations of tone in a *klang*-sensation, and the coalescence in certain cases of the impressions received by way of the two retinas, are examples of this. It is not quite certain what determines this fusion of two simultaneous feelings. It may be said generally that it is favored by similarity between the sensations; ‡ by a comparative feebleness of one of the feelings; by the fact of habitual concomitance, the two sensations occurring rarely, if ever, in isolation; and by the presence of a mental disposition to view them as answering to one external object. These considerations help us to explain the coalescence of the retinal impressions and

* *Die Schein-Bewegungen*, von Professor Dr. J. I. Hoppe (1879); cf. an ingenious article on "Optical Illusions of Motion," by Professor Silvanus P. Thompson, in *Brain*, October, 1880. These illusions frequently involve the co-operation of some preconception or expectation. For example, the apparent movement of a train when we are watching it and expecting it to move, involves both an element of sense-impression and of imagination. It is possible that the illusion of table-turning rests on the same basis, the table-turner being unaware of the fact of exerting a certain amount of muscular force, and vividly expecting a movement of the object.

* *Physiologische Optik*, p. 316.

† It is plain that this supposed error could only be brought under our definition of illusion by extending the latter, so as to include sense-perceptions which are contradicted by reason employing idealized elements of sense-impression, which, as Lewes has shown (*Problems of Life and Mind*, i. p. 260), make up the "extra-sensible world" of science.

‡ An ingenious writer, M. Binet, has tried to prove that the fusion of homogeneous sensations, having little difference of local color, is an illustration of this principle. (See the *Revue Philosophique*, September, 1880.)

its limits, the fusion of partial tones, and so on.*

It is plain that this fusion of sensations, whatever its exact conditions may be, gives rise to error or wrong interpretation of the sense-impression. Thus, to take the points of two legs of a pair of compasses for one point is clearly an illusion of perception. Here is another and less familiar example. Very cold and smooth surfaces, as those of metal, often appear to be wet. I never feel sure, after wiping the blades of my skates, that they are perfectly dry, since they always seem more or less damp to my hand. What is the reason of this? Helmholtz explains the phenomenon by saying that the feeling we call by the name of wetness is a compound sensation consisting of one of temperature and one of touch proper. These sensations occurring together so frequently, blend into one, and so we infer, according to the general instinctive tendency already noticed, that there is one specific quality answering to the feeling. And since the feeling is nearly always produced by surfaces moistened by cold liquid, we refer it to this circumstance, and speak of it as a feeling of wetness. Hence, when the particular conjunction of sensations arises apart from this external circumstance, we erroneously infer its presence.†

The most interesting case of illusion connected with the fusion of simultaneous sensations is that of single vision, or the deeply organized habit of combining the sensations of what are called the corresponding points of the two retinas. This coalescence of two sensations is so far erroneous since it makes us overlook the existence of two distinct external agencies acting on different parts of the sensitive surface of the body. And this is the more striking in the case of looking at solid objects, since here it is demonstrable that the forces acting on the two retinas are not perfectly similar. Nevertheless, such a coalescence plainly answers to the fact that these external agencies usually arise in one and the same object, and this unity of the object is, of course, the all-important thing to be sure of.

This habit may, however, beget palpable illusion in another way. In certain exceptional cases the coalescence does not take place, as when I look at a distant object and

hold a pencil just before my eyes.* And in this case the organized tendency to take one visual impression for one object asserts its force, and I tend to fall into the illusion of seeing two separate pencils. If I do not wholly lapse into the error, it is because my experience has made me vaguely aware that double images under these circumstances answer to one object, and that if there were really two pencils present I should have four visual impressions.

Once more, it is a law of sensory stimulation that an impression persists for an appreciable time after the cessation of the action of the stimulus. This "after sensation" will clearly lead to illusion, in so far as we tend to think of the stimulus as still at work. It forms, indeed, as will be seen by and by, the simplest and lowest stage of hallucination. Sometimes this becomes the first stage of a palpable error. After listening to a child crying for some time the ear easily deceives itself into supposing that the noise is continued when it has actually ceased. Again, after taking a bandage from a finger, the tingling and other sensations due to the pressure sometimes persist for a good time, in which case they easily give rise to an illusion that the finger is still bound.

It follows from this fact of the reverberation of the nervous structures after the removal of a stimulus, that whenever two discontinuous stimulations follow one another rapidly enough, they will appear continuous. This fact is a fruitful source of optical illusion. The appearance of a blending of the stripes of colors on a rotating disk or top, of the formation of a ring of light by swinging round a piece of burning wood, and the illusion of the toy known as the thaumatrope, or wheel of life, all depend on this persistence of retinal impression. Many of the startling effects of sleight of hand are undoubtedly due in part to this principle. If two successive actions or sets of circumstances to which the attention of the spectator is specially directed follow one another by a very narrow interval of time, they easily appear continuous, so that there seems absolutely no time for the introduction of an intermediate step.†

There is another limit to sensibility which is in a manner the opposite to the one just named. It is a law of nervous stimulation that a continued activity of any structure results in less and less psychic result, and

* Even the fusion of elementary sensations of color, on the hypothesis of Young and Helmholtz, in a seemingly simple sensation may be explained to some extent by these circumstances, more especially the identity of local interpretation.

† The perception of luster as a single quality seems to illustrate a like error. There is good reason to suppose that this impression arises through a difference of brightness in the two retinal images due to the regularly reflected light. And so when this inequality of retinal impression is imitated, as it may easily be by combining a black and a white surface in a stereoscope, we imagine that we are looking at one lustrous surface. (See Helmholtz, *Physiologische Optik*, p. 782, etc., and *Populäre wissenschaftliche Vorträge*, 2tes Heft, p. 80.)

* The conditions of the production of these double images have been accurately determined by Helmholtz, who shows that the coalescence of impressions takes place whenever the object is so situated in the field of vision as to make it practically necessary that it should be recognized as one.

† These illusions are, of course, due in part to inattention, since close critical scrutiny is often sufficient to dispel them. They are also largely promoted by a preconception that the event is going to happen in a particular way. But of this more further on. I may add that the late Professor Clifford has argued ingeniously against the idea of the world being a continuum, by extending this idea of the wheel of life. (See *Lectures and Essays*, i, p. 112, et seq.)

that when a stimulus is always at work it ceases in time to have any appreciable effect. The common illustration of this law is drawn from the region of sound. A constant noise, as of a mill, ceases to produce any conscious sensation. This fact, it is plain, may easily become the commencement of an illusion. Not only may we mistake a measure of noise for perfect silence,* we may misconceive the real nature of external circumstances by overlooking some continuous impression.

Curious illustrations of this effect are found in optical illusions, namely, the errors we make respecting the movement of stationary objects after continued movement of the eyes. When, for example, in a railway carriage we have for some time been following the (apparent) movement of objects, as trees, etc., and turn our eyes to an apparently stationary object, as the carpet of the compartment, this seems to move in the contrary direction to that of the trees. Helmholtz's explanation of this illusion is that when we suppose that we are fixing our eye on the carpet we are really continuing to move it over the surface by reason of the organic tendency, already spoken of, to go on doing anything that has been done. But since we are unaware of this prolonged series of ocular movements, the muscular feelings having become faint, we take the impression produced by the sliding of the picture over the retina to be the result of a movement of the object.†

Another limit to our sensibility, which needs to be just touched on here, is known by the name of the specific energy of the nerves. One and the same nerve-fiber always reacts in a precisely similar way, whatever the nature of the stimulus. Thus, when the optic nerve is stimulated in any manner, whether by light, mechanical pressure, or an electric current, the same effect, a sensation of light, follows.‡ In a usual way, a given class of nerve-fiber is only stimulated by one kind of stimulus. Thus, the retina, in ordinary circumstances, is stimulated by light. Owing to this fact, there has arisen a deeply organized habit of translating the impression in one particular way. Thus, I instinctively

regard a sensation received by means of the optic nerve as one caused by light.

Accordingly, whenever circumstances arise in which a like sensation is produced by another kind of stimulus, we fall into illusion. The phosphenes, or circles of light which are seen when the hinder part of the eye-ball is pressed, may be said to be illusory in so far as we speak of them as perceptions of light, thus referring them to the external physical agency which usually causes them. The same remark applies to those "subjective sensations," as they are called, which are known to have as their physical cause subjective stimuli, consisting, in the case of sight, in varying conditions of the peripheral organ, as increased blood-pressure. Strictly speaking, such simple feelings as these appear to be, involve an ingredient of false perception: in saying that we *perceive* light at all, we go beyond the pure sensation, interpreting this wrongly.

Very closely connected with this limitation of our sensibility is another which refers to the consciousness of the local seat, or origin of the impression. This has so far its basis in the sensation itself as it is well known that (within the limits of local discrimination, referred to above) sensations have a particular "local" color, which varies in the case of each of the nervous fibers by the stimulation of which they arise.* But though this much is known through a difference in the sensibility, nothing more is known. Nothing can certainly be ascertained by a mere inspection of the sensation as to the distance the nervous process has traveled, whether from the peripheral termination of the fiber or from some intermediate point.

In a general way, we refer our sensations to the peripheral endings of the nerves concerned, according to what physiologists have called "the law of eccentricity." Thus I am said to feel the pain caused by a bruise in the foot in the member itself. This applies also to some of the sensations of the special senses. Thus, impressions of taste are clearly localized in the corresponding peripheral terminations.

With respect to the sense of smell, and still more to those of hearing and sight, where the impression is usually caused by an object at a distance from the peripheral organ, our attention to this external cause leads us to overlook in part the "bodily seat" of the sensation. Yet even here we are dimly aware that the sensation is received by way of a particular part of the sensitive surface, that is to say, by a particular sense-organ. Thus, though referring an odor to a distant flower, we perceive that the sensation of odor has its bodily origin in the nose. And even in the case of hearing and sight, we vaguely refer the impressions, as such, to the appro-

* It is supposed that in the case of every sense-organ there is always some minimum forces of stimulus at work, the effect of which on our consciousness is nil.

† See Helmholtz, *Physiologische Optik*, p. 603. Helmholtz's explanation is criticised by Dr. Hoppe, in the work already referred to (sec. vii.), though I cannot see that his own theory of these movements is essentially different. The apparent movement of objects in vertigo, or giddiness, is probably due to the loss, through a physical cause, of the impressions made by the pressure of the fluid contents of the ear on the auditory fibers, by which the sense of equilibrium and of rotation is usually received. (See Ferrier, *Functions of the Brain*, pp. 60, 61.)

‡ I do not need here to go into the question whether, as Johannes Müller assumed, this is an original attribute of nerve-structure, or whether, as Wundt suggests, it is due simply to the fact that certain kinds of nervous fiber have, in the course of evolution, been slowly adapted to one kind of stimulus.

* I here refer to what is commonly supposed to be the vague innate difference of sensation according to the local origin, before this is rendered precise, and added to by experience and association

ropriate sense-organ. There is, indeed, in these cases a double local reference, a faint one to the peripheral organ which is acted on, and a more distinct one to the object or the force in the environment which acts on this.

Now, it may be said that the act of localization is in itself distinctly illusory, since it is known that the sensation first arises in connection with the excitation of the sensory center, and not of the peripheral fiber.* Yet it must at least be allowed that this localization of sensation answers to the important fact that, under usual circumstances, the agency producing the sensation is applied at this particular point of the organism, the knowledge of which point is supposed by modern psychologists to have been very slowly learnt by the individual and the race, through countless experiments with the moving organ of touch, assisted by the eye.

Similarly, the reference of the impression, in the case of hearing and sight, to an object in the environment, though, as we have seen, from one point of view illusory, clearly answers to a fact of our habitual experience; for in an immense preponderance of cases at least a visual or auditory impression does arise through the action on the sense-organ of a force (ether or air waves) proceeding from a distant object.

In some circumstances, however, even this element of practical truth disappears, and the localization of the impression, both within and without the organism, becomes altogether illusory. This result is involved in the illusions, already spoken of, which arise from the instinctive tendency to refer sensations to the ordinary kind of stimulus. Thus, when a feeling resulting from a disturbance in the optic nerve is interpreted as one of external light vaguely felt to be acting on the eye, or one resulting from some action set up in the auditory fiber as a sensation of external sound vaguely felt to be entering the ear, we see that the error of localization is a consequence of the other error already characterized.

As I have already observed, an excitation of a nerve at any other point than the peripheral termination, occurs but rarely in normal life. One familiar instance is the stimulation of the nerve running to the hand and fingers, by a sharp blow on the elbow over which it passes. As everybody knows, this gives rise to a sense of pain at the *extremities* of the nerve. The most common illustration of such errors of localization is found in subjective sensations, such as the impression we sometimes have of something creeping over

the skin, of a disagreeable taste in the mouth, of luminous spots floating across the field of vision, and so on. The exact physiological seat of these is often a matter of conjecture only; yet it may safely be said that in many instances the nervous excitation originates at some point considerably short of its peripheral extremity: in which case there occurs the illusion of referring the impressions to the peripheral sense-organ, and to an external force acting on this.

The most striking instances of these errors of localization are found in abnormal circumstances. It is well known that a man who has lost a leg refers all sensations arising from a stimulation of the truncated fibers to his lost foot, and in some cases has even to convince himself of the non-existence of his lost member by sight or touch. Patients often describe these experiences in very odd language. "If," says one of Dr. Weir Mitchell's patients, "I should say I am more sure of the leg which ain't than the one which air, I guess I should be about correct."*

There is good reason for supposing that this source of error plays a prominent part in the illusions of the insane. Diseased centers may be accompanied by disordered peripheral structures, and so subjective sensation may frequently be the starting-point of the wildest illusions. Thus, a patient's horror of poison may have its first origin in some subjective gustatory sensation. Similarly, subjective tactual sensations may give rise to gross illusions, as when a patient "feels" his body attacked by foul and destructive creatures.

It may be well to remark that this mistaken interpretation of the seat or origin of subjective sensation is closely related to hallucination. In so far as the error involves the ascription of the sensation to a force external to the sense-organ, this part of the mental process must, when there is no such force present, be viewed as hallucinatory. Thus, the feeling of something creeping over the skin is an hallucination in the sense that it implies the idea of an object external to the skin. Similarly, the projection of an ocular impression due to retinal disturbance into the external field of vision, may rightly be named an hallucination. But the case is not always so clear as this. Thus, for example, when a gustatory sensation is the result of an altered condition of the saliva, it may be said that the error is as much an illusion as an hallucination.†

In a wide sense, again, all errors connected with those subjective sensations which arise from a stimulation of the peripheral regions

* The illusory character of this simple mode of perception is seen best, perhaps, in the curious habit into which we fall of referring a sensation of contact or discomfort to the edge of the teeth, the hair, and the other insensient structures, and even to anything customarily attached to the sentient surface, as dress, a pen, graving tool, etc. On these curious illusions, see Lotze, *Mikrokosmos*, third edit., vol. ii. p. 202, etc.; Taine, *De l'Intelligence*, tom. ii. p. 83, et seq.

* Quoted by G. H. Lewes, *Problems of Life and Mind*, third series, p. 335. These illusions are supposed to involve an excitation of the nerve-fibers (whether sensory or motor) which run to the muscles and yield the so-called muscular sensations.

† It is brought out by Griesinger (*loc. cit.*) and the other writers on the pathology of illusion already quoted, that in the case of subjective sensations of touch, taste, and smell, no sharp line can be drawn between illusion and hallucination.

of the nerve may be called illusions rather than hallucinations. Or, if they must be called hallucinations, they may be distinguished as "peripheral" from those "central" hallucinations which arise through an internal automatic excitation of the sensory center. It is plain from this that the region of subjective sensation is an ambiguous region, where illusion and hallucination mix and become confused. To this point I shall have occasion to return by and by.

I have now probably said enough respecting the illusions that arise through the fact of there being fixed limits to our sensibility. The *rationale* of these illusions is that whenever the limit is reached, we tend to ignore it and to interpret the impression in the customary way.

Variations of Sensibility.—We will now pass to a number of illusions which depend on something variable in the condition of our sensibility, or some more or less exceptional organic circumstance. These variations may be momentary and transient or comparatively permanent. The illusion arises in each case from our ignoring the variation, and treating a given sensation under all circumstances as answering to one objective cause.

First of all, the variation of organic state may effect our mental representation of the strength of the stimulus or external cause. Here the fluctuation may be a temporary or a permanent one. The first case is illustrated in the familiar example of taking a room to be brighter than it is when emerging from a dark one. Another striking example is that of our sense of the temperature of objects, which is known to be strictly relative to a previous sensation, or more correctly to the momentary condition of the organ. Yet, though every intelligent person knows this, the deeply rooted habit of making sensation the measure of objective quality asserts its sway, and frequently leads us into illusion. The well-known experiment of first plunging one hand in cold water, the other in hot, and then dipping them both in tepid, is a startling example of this organized tendency. For here we are strongly disposed to accept the palpable contradiction that the same water is at once warm and cool.

Far more important than these temporary fluctuations of sensibility are the permanent alterations. Excessive fatigue, want of proper nutrition, and certain poisons are well known to be causes of such changes. They appear most commonly under two forms, exalted sensibility, or hyperæsthesia, and depressed sensibility, or anæsthesia. In these conditions flagrant errors are made as to the real magnitude of the causes of the sensations. These variations may occur in normal life to some extent. In fairly good health we experience at times strange exaltations of tactual sensibility, so that a very slight stimulus, such as the contact of the bed-clothes, becomes greatly exaggerated.

In diseased states of the nervous system

these variations of sensibility become much more striking. The patient who has hyperæsthesia fears to touch a perfectly smooth surface, or he takes a knock at the door to be a clap of thunder. The hypochondriac may, through an increase of organic sensibility, translate organic sensations as the effect of some living creature gnawing at his vitals. Again, states of anæsthesia lead to odd illusions among the insane. The common supposition that the body is dead, or made of wood or of glass, is clearly referable in part to lowered sensibility of the organism.*

It is worth adding, perhaps, that these variations in sensibility give rise not only to sensory but also to motor illusions. To take a homely instance, the last miles of a long walk seem much longer than the first, not only because the sense of fatigue leading us to dwell on the transition of time tends to magnify the apparent duration, but because the fatigued muscles and connected nerves yield a new set of sensations which constitute an exaggerated standard of measurement. A number of optical illusions illustrate the same thing. Our visual sense of direction is determined in part by the feelings accompanying the action of the ocular muscles, and so is closely connected with the perception of movement, which has already been touched on. If an ocular muscle is partially paralyzed it takes a much greater "effort" to effect a given extent of movement than when the muscle is sound. Hence any movement performed by the eye seems exaggerated. Hence, too, in this condition objects are seen in a wrong direction; for the patient reasons that they are where they would seem to be if he had executed a wider movement than he really has. This may easily be proved by asking him to try to seize the object with his hand. The effect is exaggerated when complete paralysis sets in, and no actual movement occurs in obedience to the impulse from within.†

Variations in the condition of the nerve affect not only the degree, but also the quality of the sensation, and this fact gives rise to a new kind of illusion. The curious phenomena of color-contrast illustrate momentary alterations of sensibility. When, after looking at a green color for a time, I turn my eye to a gray surface and see this of the complementary rose-red hue, the effect is supposed to be due to a temporary fatigue of the retina in relation to those ingredients of the total light in the second case which answer to

* For a fuller account of these pathological disturbances of sensibility, see Griesinger; also Dr. A. Mayer, *Die Sinnestäuschungen*.

† Helmholtz, *op. cit.*, p. 600, *et seq.* These facts seem to point to the conclusion that at least some of the feelings by which we know that we are expending muscular energy are connected with the initial stage of the outgoing nervous process in the motor centers. In other pathological conditions the sense of weight by the muscles of the arms is similarly confused.

the partial light in the first (the green rays).*

These momentary modifications of sensibility are of no practical significance, being almost instantly corrected. Other modifications are more permanent. It was found by Himly that when the retina is over-excitabile every stimulus is raised in the spectrum scale of colors. Thus, violet becomes red. An exactly opposite effect is observed when the retina is torpid.† Certain poisons are known to affect the quality of the color-impression. Thus, *santonin*, when taken in any quantity, makes all colorless objects look yellow. Severe pathological disturbances are known to involve, in addition to hyperæsthesia and anæsthesia, what has been called *paræsthesia*, that is to say, that condition in which the quality of sensation is greatly changed. Thus, for example, to one in this state all food appears to have a metallic taste, and so on.

If we now glance back at the various groups of illusions just illustrated, we find that they all have this feature in common: they depend on the general mental law that when we have to do with the unfrequent, the unimportant, and therefore unattended to, and the exceptional, we employ the ordinary, the familiar, and the well-known as our standard. Thus, whether we are dealing with sensations that fall below the ordinary limits of our mental experience, or with those which arise in some exceptional state of the organism, we carry the habits formed in the much wider region of average every-day perception with us. In a word, illusion in these cases always arises through what may, figuratively at least, be described as the application of a rule, valid for the majority of cases, to an exceptional case.

In the varieties of illusion just considered, the circumstance that gives the peculiarity to the case thus wrongly interpreted has been referred to the organism. In the illusions to which we now pass, it will be referred to the environment. At the same time, it is plain that there is no very sharp distinction between the two classes. Thus, the visual illusion produced by pressing the eyeball might be regarded not only as the result of the organic law of the "specific energy" of the nerves, but, with almost

equal appropriateness, as the consequence of an exceptional state of things in the environment, namely, the pressure of a body on the retina. As I have already observed, the classification here adopted is to be viewed simply as a rough expedient for securing something like a systematic review of the phenomena.

CHAPTER V.

ILLUSIONS OF PERCEPTION—continued.

A. Passive Illusions (b) as determined by the Environment.—In the following groups of illusion we may look away from nervous processes and organic disturbances, regarding the effect of any external stimulus as characteristic, that is, as clearly marked off from the effects of other stimuli, and as constant for the same stimulus. The source of the illusion will be looked for in something exceptional in the external circumstances, whereby one object or condition of an object imitates the effect of another object or condition, to which, owing to a large preponderance of experience, we at once refer it.

Exceptional Relation of Stimulus to Organ.—A transition from the preceding to the following class of illusions is to be met with in those errors which arise from a very exceptional relation between the stimulus and the organ of sense. Such a state of things is naturally interpreted by help of more common and familiar relations, and so error arises.

For example, we may grossly misinterpret the intensity of a stimulus under certain circumstances. Thus, when a man crunches a biscuit, he has an uncomfortable feeling that the noise as of all the structures of his head being violently smashed is the same to other ears, and he may even act on his illusory perception, by keeping at a respectful distance from all observers. And even though he be a physiologist, and knows that the force of sensation in this case is due to the propagation of vibrations to the auditory center by other channels than the usual one of the ear, the deeply organized impulse to measure the strength of an external stimulus by the intensity of the sensation asserts its force.

Again, if we turn to the process of perceptual construction properly so called, the reference of the sensation to a material object lying in a certain direction, etc., we find a similar transitional form of illusion. The most interesting case of this in visual perception is that of a disturbance or displacement of the organ by external force. For example, an illusory sense of direction arises by the simple action of closing one eye, say the left, and pressing the other eyeball with one of the fingers a little outwards, that is to the right. The result of this movement is, of course, to transfer the retinal picture to new nervous elements further to

* Wundt (*Physiologische Psychologie*, p. 653) would exclude from illusions all those errors of sense-perception which have their foundation in the normal structure and function of the organs of sense. Thus, he would exclude the effects of color-contrast, e.g., the apparent modification of two colors in juxtaposition toward their common boundary, which probably arises (according to E. Hering) from some mutual influence of the temporary state of activity of adjacent retinal elements. To me, however, these appear to be illusions, since they may be brought under the head of wrong interpretations of sense-impressions. When we see a gray patch as rose-red, as though it were so independently of the action of the complementary light previously or simultaneously, that is to say, as though it would appear rose-red to an eye independently of this action, we surely misinterpret.

† Quoted by G. H. Lewes, *loc. cit.*, p. 257.

the right. And since, in this instance, the displacement is not produced in the ordinary way by the activity of the ocular muscle making itself known by certain feelings of movement, it is disregarded altogether, and the direction of the objects is judged as though the eye were stationary.

A somewhat similar illusion as to direction occurs in auditory perception. The sense of direction by the ear is known to be due in part to the action of the auricle, or projecting part of the ear. This collects the air-waves, and so adds to the intensity of the sounds, especially those coming from in front, and thus assists in the estimation of direction. This being so, if an artificial auricle is placed in front of the ears; if, for example, the two hands are each bent into a sort of auricle, and placed in front of the ears, the back of the hand being in front, the sense of direction (as well as of distance) is confused. Thus, sounds really traveling from a point in front of the head will appear to come from behind it.

Again, the perception of the unity of an object is liable to be falsified by the introduction of exceptional circumstances into the sense-organ. This is illustrated in the well-known experiment of crossing two fingers, say the third and fourth, and placing a marble or other small round object between them. Under ordinary circumstances, the two lateral surfaces (that is, the outer surfaces of the two fingers) now pressed by the marble, can only be acted on simultaneously by two objects having convex surfaces. Consequently, we cannot help feeling the presence of two objects in this exceptional instance. The illusion is analogous to that of the stereoscope, to be spoken of presently.

Exceptional External Arrangements.—Passing now to those cases where the exceptional circumstance is altogether exterior to the organ, we find a familiar example in the illusions connected with the action of well-known physical forces, as the refraction of light, and the reflection of light and sound. A stick half-immersed in water always looks broken, however well we may know that the appearance is due to the bending of the rays of light. Similarly, an echo always sounds as though it came from some object in the direction in which the air-waves finally travel to the ear, though we are perfectly sure that these undulations have taken a circuitous course. It is hardly necessary to remind the reader that the deeply organized tendency to mistake the direction of the visible or audible object in these cases has from remote ages been made use of as a means of popular delusion. Thus, we are told by Sir D. Brewster, in his entertaining *Letters on Natural Magic* (letter iv.), that the concave mirror was probably used as the instrument for bringing the gods before the people. The throwing of the images formed by such mirrors upon smoke or against fire, so as to make them more distinct, seems to have

been a favorite device in the ancient art of necromancy.

Closely connected with these illusions of direction with respect to resting objects, are those into which we are apt to fall respecting the movements of objects. What looks like the movement of something across the field of vision is made known to us either by the feeling of the ocular muscles, if the eye follows the object, or through the sequence of locally distinct retinal impressions, if the eye is stationary. Now, either of these effects may result, not only from the actual movement of the object in a particular direction, but from our own movement in an opposite direction; or, again, from our both moving in the first direction, the object more rapidly than ourselves; or, finally, from our both moving in an opposite direction to this, ourselves more rapidly than the object. There is thus always a variety of conceivable explanations, and the action of past experience and association shows itself very plainly in the determination of the direction of interpretation. Thus, it is our instinctive tendency to take apparent movement, for real movement, except when the fact of our own movement is clearly present to consciousness, as when we are walking, or when we are sitting behind a horse whose movement we see. And so when the sense of our own movement becomes indistinct, as in a railway carriage, we naturally drift into the illusion that objects, such as trees, telegraph posts, and so on, are moving, when they are perfectly still. Under the same circumstances, we are apt to suppose that a train which is just shooting ahead of us is moving slowly.

Similar uncertainties arise with respect to the relative movement of two objects, the eye being supposed to be fixed in space. When two objects seem to pass one another, it may be that they are both moving in contrary directions, or that one only is moving, or finally, that both are moving in the same direction, the one faster than the other. Experience and habit here again suggest the interpretation which is most easy, and not unfrequently produce illusion. Thus, when we watch clouds scudding over the face of the moon, the latter seems moving rather than the former, and the illusion only disappears when we fix the eye on the moon and recognize that it is really stationary. The probable reason of this is, as Wundt suggests, that experience has made it far easier for us to think of small objects like the moon moving rapidly, than of large masses like the clouds.*

The perception of distance, still more than that of direction, is liable to be illusory. Indeed, the visual recognition of distance, together with that of solidity, has been the great region for the study of "the deceptions

* The subject of the perception of movement is too intricate to be dealt with fully here. I have only touched on it so far as necessary to illustrate our general principle. For a fuller treatment of the subject, see the work of Dr. Hoppe, already referred to.

of the senses." Without treating the subject fully here, I shall try to describe briefly the nature and source of these illusions.*

Confining ourselves first of all to near objects, we know that the smaller differences of distance in these cases are, if the eyes are at rest, perceived by means of the dissimilar pictures projected on the two retinas; or if they move, by this means, together with the muscular feelings that accompany different degrees of convergence of the two eyes. This was demonstrated by the famous experiments of Wheatstone. Thus, by means of the now familiar stereoscope, he was able to produce a perfect illusion of relief. The stereoscope may be said to introduce an exceptional state of things into the spectator's environment. It imitates, by means of two flat drawings, the dissimilar retinal pictures projected by a single solid receding object, and the lenses through which the eyes look are so constructed as to compel them to converge as though looking on a single object. And so powerful is the tendency to interpret this impression as one of solidity, that even though we are aware of the presence of the stereoscopic apparatus, we cannot help seeing the two drawings as a single solid object.

In the case of more remote objects, there is no dissimilarity of the retinal pictures or feelings of convergence to assist the eye in determining distance. Here its judgment, which now becomes more of a process of *conscious* inference, is determined by a number of circumstances which, through experience and association, have become the signs of differences of depth in space. Among these are the degree of indistinctness of the impression, the apparent or retinal magnitude (if the object is a familiar one), the relations of linear perspective, as the interruption of the outline of far objects by that of near objects, and so on. In a process so complicated there is clearly ample room for error, and wrong estimates of distance whenever unusual circumstances are present are familiar to all. Thus the inexperienced English tourist, when in the clear atmosphere of Switzerland, where the impressions from distant objects are more distinct than at home, naturally falls into the illusion that the mountains are much nearer than they are, and so fails to realize their true altitude.

Illusions of Art.—The imitation of solidity and depth by art is a curious and interesting illustration of the mode of production of illusion. Here we are not, of course, concerned with the question how far illusion is desirable in art, but only with its capabilities of illusory

* The perception of magnitude is closely connected with that of distance, and is similarly apt to take an illusory form. I need only refer to the well-known simple optical contrivances for increasing the apparent magnitude of objects. I ought, perhaps, to add that I do not profess to give a complete account of optical illusions here, but only to select a few prominent varieties, with a view to illustrate general principles of illusion. For a fuller account of the various mechanical arrangements for producing optical illusion, I must refer the reader to the writings of Sir D. Brewster and Helmholtz.

presentation; which capabilities, it may be added, have been fully illustrated in the history of art. The full treatment of this subject would form a chapter in itself; here I can only touch on its main features.

Pictorial art working on a flat surface cannot, it is plain, imitate the stereoscope, and produce a perfect sense of solidity. Yet it manages to produce a pretty strong illusion. It illustrates in a striking manner the ease with which the eye conceives relations of depth or relief and solidity. If, for example, on a carpet, wall-paper, or dress, bright lines are laid on a dark color as ground, we easily imagine that they are advancing. The reason of this seems to be that in our daily experience advancing surfaces catch and reflect the light, whereas retiring surfaces are in shadow.*

The same principle is illustrated in one of the means used by the artist to produce a strong sense of relief, namely, the cast shadow. A circle drawn with chalk with a powerful cast shadow on one side will, without any shading or modeling of the form, appear to stand out from the paper, thus:



FIG. 1.

The reason is that the presence of such a shadow so forcibly suggests to the mind that the object is a prominent one intervening between the light and the shaded surface.†

Even without differences of light and shade, by a mere arrangement of lines, we may produce a powerful sense of relief or solidity. A striking example of this is the way in which two intersecting lines sometimes appear to recede from the eye, as the lines *a a'*, *b b'*, in the next drawing, which seem to belong to a regular pattern on the ground, at which the eye is looking from above and obliquely.

Again, the correct delineation of the projection of a regular geometrical figure, as a cube, suffices to give the eye a sense of relief.

* Painters are well aware that the colors at the red end of the spectrum are apt to appear as advancing, while those of the violet end are known as retiring. The appearance of relief given by a gilded pattern on a dark blue as ground, is in part referable to the principle just referred to. In addition, it appears to involve a difference in the action of the muscles of accommodation in the successive adaptations of the eye to the most refrangible and the least refrangible rays. (See *Brücke, Die Physiologie der Farber*, sec. 17.)

† Helmholtz tells us (*Populäre wissenschaftliche Vorträge*, 3tes Heft, p. 64) that even in a stereoscopic arrangement the presence of a wrong cast shadow sufficed to disturb the illusion.

This effect is found to be the more striking in proportion to the familiarity of the form.



FIG. 2.

The following drawing of a long box-shaped solid at once seems to stand out to the eye.

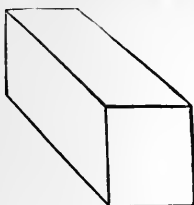


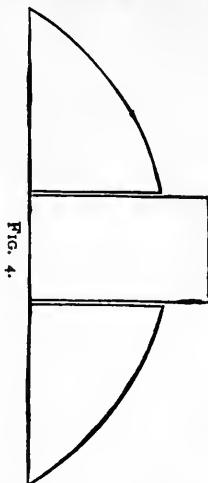
FIG. 3.

This habitual interpretation of the flat in art as answering to objects in relief, or having depth, can only be understood when it is remembered that our daily experience gives us myriads of instances in which the effect of such flat representations answers to solid receding forms. That is to say, in the case of all distant objects, in the perception of which the dissimilarity of the retinal pictures and the feeling of convergence take no part, we have to interpret solidity and relations of nearer and further by such signs as linear perspective and cast shadow. On the other hand, it is only in the artificial life of indoors, on our picture-covered walls, that we experience such effects without discovering corresponding realities. Hence a deeply organized habit of taking these impressions as answering to the solid and not to the flat. If our experience had been quite different; if, for example, we had been brought up in an empty room, amid painted walls, and had been excluded from the sight of the world of receding objects outside, we might easily have formed an exactly opposite habit of taking the actual mountains, trees, etc., of the distant scene to be pictures laid on a flat surface.

It follows from this that, with respect to the distant parts of a scene, pictorial art possesses the means of perfect imitation; and here we see that a complete illusory effect is obtainable. I need but to refer to the well-known devices of linear and aerial perspective, by which this result is secured.*

* Among the means of giving a vivid sense of depth to a picture, emphasized by Helmholtz, is diminishing magnitude. It is obvious that the perceptions of real magnitude and distance are mutually involved. When, for example, a picture represents a receding series of objects, as animals, trees, or buildings, the sense of the third dimension is rendered much more clear.

The value of these means of producing illusion at the command of the painter, may be illustrated by the following fact, which I borrow from Helmholtz. If you place two pieces of cardboard which correspond to portions of one form at the sides and in



front of a third piece, in the way represented above, so as just to allow the eye to follow the contour of this last, and then look at this arrangement from a point at some little distance with one eye, you easily suppose that it stands in front of the side pieces. The explanation of the illusion is that this particular arrangement powerfully suggests that the outline of the whole figure, of which the two side pieces are parts, is broken by an intervening object. Owing to the force of these and other suggestions, it is easy for the spectator, when attending to the background of a landscape painting, to give himself up for a moment to the pleasant delusion that he is looking at an actual receding scene.

In connection with pictorial delusion, I may refer to the well-known fact, that the eye in a portrait seems to follow the spectator, or that a gun, with its muzzle pointing straight outwards, appears to turn as the spectator moves.* These tricks of art have puzzled many people, yet their effect is easily understood, and has been very clearly explained by Sir D. Brewster, in the work already referred to (letter v.). They depend on the fact that a painting, being a flat projection only and not a solid, continues to present the front view of an object which it represents wherever the spectator happens to stand. Were the eye in the portrait a real eye, a side movement of the spectator would, it is evident, cause him to see less of the pupil and more of the side of the eyeball,

* A striking example of this was given in a painting, by Andsell, of a sportsman in the act of shooting, exhibited in the Royal Academy in 1879.

and he would only continue to see the full pupil when the eye followed him. We regard the eye in the picture as a real eye having relief, and judge accordingly.

We may fall into similar illusions respecting distance in auditory perception. A change of wind, an unusual stillness in the air, is quite sufficient to produce the sense that sounding objects are nearer than they actually are. The art of the ventriloquist manifestly aims at producing this kind of illusion. By imitating the dull effect of a distant voice, he is able to excite in the minds of his audience a powerful conviction that the sounds proceed from a distant point. There is little doubt that ventriloquism has played a conspicuous part in the arts of divination and magic.

Misconception of Local Arrangement.—Let us now pass to a class of illusions closely related to those having to do with distance, but involving some special kind of circumstance which powerfully suggests a particular arrangement in space. One of the most striking examples of these is the erroneous localization of a quality in space, that is to say, the reference of it to an object nearer or further off than the right one. Thus, when we look through a piece of yellow glass at a dull, wintry landscape, we are disposed to imagine that we are looking at a sunny scene of preternatural warmth. A moment's reflection would tell us that the yellow tint with which the objects appear to be suffused, comes from the presence of the glass; yet, in spite of this, the illusion persists with a curious force. The explanation is, of course, that the circumstances are exceptional, that in a vast majority of cases the impression of color belongs to the object and not to an intervening medium,* and that consequently we tend to ignore the glass, and to refer the color to the objects themselves.

When, however, the fact of the existence of a colored medium is distinctly present to the mind, we easily learn to allow for this, and to recognize one colored surface correctly through a recognized medium. Thus, we appear to ourselves to see the reflected images of the wall, etc., of a room, in a bright mahogany table, not suffused with a reddish yellow tint, as they actually are—and may be seen to be by the simple device of looking at a small bit of the image through a tube, but in their ordinary color. We may be said to fall into illusion here in so far as we overlook the exact quality of the impression actually made on the eye. This point will be touched on presently. Here I am concerned to show that this habit of allowing for the colored medium may, in its turn, occasionally lead to plain and palpable illusion.

The most striking example of this error is to be met with among the curious phenomena of color-contrast already referred to. In many of these cases the appearance of the contrasting color is, as I have observed, due

to a temporary modification of the nervous substance. Yet it is found that this organic factor does not wholly account for the phenomena. For example, Meyer made the following experiment. He covered a piece of green paper by a sheet of thin transparent white paper. The color of this double surface was, of course, a pale green. He then introduced a scrap of gray paper between the two sheets, and found that, instead of looking whitish as it really was, it looked rose-red. Whatever the color of the under sheet the gray scrap took the complementary hue. If, however, the piece of gray paper is put outside the thin sheet, it looks gray; and what is most remarkable is that when a second piece is put outside, the scrap inside no longer wears the complementary hue.

There is here evidently something more than a change of organic conditions; there is an action of experience and suggestion. The reason of our seeing the scrap rose-red in one case and neutral gray in another, is that in the first instance we vividly represent to ourselves that we are looking at it through a greenish veil (which is, of course, a part of the illusion); for rose-red seen through a greenish medium would, as a matter of fact, be light gray, as this scrap is. Even if we allow that there always exists after an impression of color a temporary organic disposition to see the complementary hue, this does not suffice as an explanation of these cases; we have to conclude further that imagination, led by the usual run of our experience, is here a co-operant factor, and helps to determine whether the complementary tint shall be seen or not.

Misinterpretation of Form.—More complex and circumscribed associations take part in those errors which we occasionally commit respecting the particular form of objects. This has already been touched on in dealing with artistic illusion. The disposition of the eye to attribute solidity to a flat drawing is the more powerful in proportion to the familiarity of the form. Thus, an outline drawing of a building is apt to stand out with special force.

Another curious illustration of this is the phenomenon known as the conversion of the concave mold or matrix of a medal into the corresponding convex relief. If, says Helmholtz, the mold of a medal be illuminated by a light falling obliquely so as to produce strong shadows, and if we regard this with one eye, we easily fall into the illusion that it is the original raised design, illuminated from the opposite side. As a matter of fact, the visual impression produced by a concave form with the light falling on one side, very closely resembles that produced by a corresponding convex form with the light falling on the other side. At the same time, it is found that the opposite mode of conversion, that is to say, the transformation of the raised into the depressed form, though occurring occasionally, is much less frequent. Now, it may be asked, why should we tend to transform the

* This is at least true of all near objects.

concave into the convex, rather than the convex into the concave? The reader may easily anticipate the answer from what has been said about the deeply fixed tendency of the eye to solidify a plane surface. We are rendered much more familiar, both by nature and by art, with raised (*caméo*) design than with depressed design (*intaglio*), and we instinctively interpret the less familiar form by the more familiar. This explanation appears to be borne out by the fact emphasized by Schroeder that the illusion is much more powerful if the design is that of some well-known object, as the human head or figure, or an animal form, or leaves.*

Another illustration of this kind of illusion recently occurred in my own experience. Nearly opposite to my window came a narrow space between two detached houses. This was, of course, darker than the front of the houses, and the receding parallel lines of the bricks appeared to cross this narrow vertical shaft obliquely. I could never look at this without seeing it as a convex column, round which the parallel lines wound obliquely. Others saw it as I did, though not always with the same overpowering effect. I can only account for this illusion by help of the general tendency of the eye to solidify impressions drawn from the flat, together with the effect of special types of experience, more particularly the perception of cylindrical forms in trees, columns, etc.

It may be added that a somewhat similar illustration of the action of special types of experience on the perception of individual form may be found in the region of hearing. The powerful disposition to take the finely graduated cadences of sound produced by the wind for the utterances of a human voice, is due to the fact that this particular form and arrangement of sound has deeply impressed itself on our minds in connection with numberless utterances of human feeling.

Illusions of Recognition.—As a last illustration of comparatively passive illusions, I may refer to the errors which we occasionally commit in recognizing objects. As I have already observed, the process of full and clear recognition, specific and individual, involves a classing of a number of distinct aspects of the object, such as color, form, etc. Accordingly, when in a perfectly calm state of mind we fall into illusion with respect to any object plainly visible, it must be through some accidental resemblance between the object and the other object or class of objects with which we identify it. In the case of individual identification such illusions are, of course, comparatively rare, since here there are involved so many characteristic differences. On the other hand, in the case of specific recognition there is ample room for error,

especially in those kinds of more subtle recognition to which I have already referred. To "recognize" a person as a Frenchman or a military man, for example, is often an erroneous process. Logicians have included this kind of error under what they call "fallacies of observation."

Errors of recognition, both specific and individual, are, of course, more easy in the case of distant objects or objects otherwise indistinctly seen. It is noticeable in these cases that, even when perfectly cool and free from emotional excitement, we tend to interpret such indistinct impressions according to certain favorite types of experience, as the human face and figure. Our interpretative imagination easily sees traces of the human form in cloud, rock, or tree-stump.

Again, even when there is no error of recognition, in the sense of confusing one object with other objects, there may be partial illusion. I have remarked that the process of recognizing an object commonly involves an overlooking of points of diversity in the object, or aspect of the object, now present. And sometimes this inattention to what is actually present includes an error as to the actual visual sensation of the moment. Thus, for example, when I look at a sheet of white paper in a feebly lit room, I seem to see its whiteness. If, however, I bring it near the window, and let the sun fall on a part of it, I at once recognize that what I have been seeing is not white, but a decided gray. Similarly, when I look at a brick viaduct a mile or two off, I appear to myself to recognize its redness. In fact, however, the impression of color which I receive from the object is not that of brick-red at all, but a much less decided tint; which I may easily prove by bending my head downwards and letting the scene image itself on the retina in an unusual way, in which case the recognition of the object as a viaduct being less distinct, I am better able to attend to the exact shade of the color.

Nowhere is this inattention to the sensation of the moment exhibited in so striking a manner as in pictorial art. A picture of Meissonier may give the eye a representation of a scene in which the objects, as the human figures and horses, have a distinctness that belongs to near objects, but an apparent magnitude that belongs to distant objects. So again, it is found that the degree of luminosity or brightness of a pictorial representation differs in general enormously from that of the actual objects. Thus, according to the calculations of Helmholtz,* a picture representing a Bedouin's white raiment in blinding sunshine, will, when seen in a fairly lit gallery, have a degree of luminosity reaching only to about one-thirtieth of that of the actual object. On the other hand, a painting representing marble ruins illuminated by moonlight, will, under the same conditions of illumination, have a luminosity amounting to as

* Helmholtz remarks (*op. cit.*, p. 628) that the difficulty of seeing the concave cast as convex is probably due to the presence of the cast shadow. This has, no doubt, some effect: yet the consideration urged in the text appears to me to be the most important one.

* *Populäre wissenschaftliche Vorträge*, 3tes Heft, pp. 71, 72.

much as from ten to twenty thousand times that of the object. Yet the spectator does not notice these stupendous discrepancies. The representation, in spite of its vast difference, at once carries the mind on to the actuality, and the spectator may even appear to himself, in moments of complete absorption, to be looking at the actual scene.

The truly startling part of these illusions is, that the direct result of sensory stimulation appears to be actually displaced by a mental image. Thus, in the case of Meyer's experiment, of looking at the distant viaduct, and of recognizing an artistic representation, imagination seems in a measure to take the place of sensation, or to blind the mind to what is actually before it.

The mystery of the process, however, greatly disappears when it is remembered that what we call a conscious "sensation" is really compounded of a result of sensory stimulation and a result of central reaction, of a purely passive impression and the mental activity involved in attending to this and classing it.* This being so, a sensation may be modified by anything exceptional in the mode of central reaction of the moment. Now, in all the cases just considered, we have one common feature, a powerful suggestion of the presence of a particular object or local arrangement. This suggestion, taking the form of a vivid mental image, dominates and overpowers the passive impression. Thus, in Meyer's experiment, the mind is possessed by the supposition that we are looking at the gray spot through a greenish medium. So in the case of the distant viaduct, we are under the mastery of the idea that what we see in the distance is a red brick structure. Once more, in the instance of looking at the picture, the spectator's imagination is enchained by the vivid representation of the object for which the picture stands, as the marble ruins in the moonlight or the Bedouin in the desert.

It may be well to add that this mental uncertainty as to the exact nature of a present impression is necessitated by the very conditions of accurate perception. If, as I have said, all recognition takes place by overlooking points of diversity, the mind must, in course of time, acquire a habit of not attending to the exact quality of sense-impressions in all cases where the interpretation seems plain and obvious. Or, to use Helmholtz's words, our sensations are, in a general way, of interest to us only as signs of things, and if we are sure of the thing, we readily overlook the precise nature of the impression. In short, we get into the way of attending only to what is essential, constant, and characteristic in objects, and disregarding what is variable and accidental.† Thus, we attend,

* See, on this point, some excellent remarks by G. H. Lewes, *Problems of Life and Mind*, third series, vol. ii. p. 275.

† To some extent this applies to the changes of apparent magnitude due to altered position. Thus, we do not attend to the reduction of the height of

in the first place, to the form of objects, the most constant and characteristic element of all, being comparatively inattentive to color, which varies with distance, atmospheric changes, and mode of illumination. So we attend to the relative magnitude of objects rather than to the absolute, and to the relative intensities of light and shade rather than to the absolute; for in so doing we are noting what is constant for all distances and modes of illumination, and overlooking what is variable. And the success of pictorial art depends on the observance of this law of perception.

These remarks at once point out the limits of these illusions. In normal circumstances, an act of imagination, however vivid, cannot create the semblance of a sensation which is altogether absent; it can only slightly modify the actual impression by interfering with that process of comparison and classification which enters into all definite determination of sensational quality.

Another great fact that has come to light in the investigation of these illusions is that oft-recurring and familiar types of experience leave permanent dispositions in the mind. As I said when describing the process of perception, what has been frequently perceived is perceived more and more readily. It follows from this that the mind will be habitually disposed to form the corresponding mental images, and to interpret impressions by help of these. The range of artistic suggestion depends on this. A clever draughtsman can indicate a face by a few rough touches, and this is due to the fact that the spectator's mind is so familiarized, through recurring experience and special interest, with the object, that it is ready to construct the requisite mental image at the slightest external suggestion. And hence the risk of hasty and illusory interpretation.

These observations naturally conduct us to the consideration of the second great group of sense-illusions, which I have marked off as active illusions, where the action of a pre-existing intellectual disposition becomes much more clearly marked, and assumes the form of a free imaginative transformation of reality.

CHAPTER VI.

ILLUSIONS OF PERCEPTION—continued.

B. Active Illusions.—When giving an account of the mechanism of perception, I spoke of an independent action of the imagination which tends to anticipate the process of suggestion from without. Thus, when expecting a particular friend, I recognize his

a small object which we are wont to handle, when it is placed far below the level of the eye. And hence the error people make in judging of the point in the wall or skirting which a bat will reach when placed on the ground.

form much more readily than when my mind has not been preoccupied with his image.

A little consideration will show that this process must be highly favorable to illusion. To begin with, even if the preperception be correct, that is to say, if it answer to the perception, the mere fact of vivid expectation will affect the exact moment of the completed act of perception. And recent experiment shows that in certain cases such a previous activity of expectant attention may even lead to the illusory belief that the perception takes place before it actually does.*

A more palpable source of error resides in the risk of the formation of an inappropriate preperception. If a wrong mental image happens to have been formed and vividly entertained, and if the actual impression fits in to a certain extent with this independently formed preperception, we may have a fusion of the two which exactly simulates the form of a complete percept. Thus, for example, in the case just supposed, if another person, bearing some resemblance to our expected friend, chances to come into view, we may probably stumble into the error of taking one person for another.

On the physical side, we may, agreeably to the hypothesis mentioned above, express this result by saying that, owing to a partial identity in the nervous processes involved in the anticipatory image and the impression, the two tend to run one into the other, constituting one continuous process.

There are different ways in which this independent activity of the imagination may falsify our perceptions. Thus, we may voluntarily choose to entertain a certain image for a moment, and to look at the impression in a particular way, and within certain limits such capricious selection of an interpretation is effectual in giving a special significance to an impression. Or the process of independent preperception may go on apart from our volitions, and perhaps in spite of these, in which case the illusion has something of the irresistible necessity of a passive illusion. Let us consider separately each mode of production.

Voluntary Selection of Interpretation.—The action of a capricious exercise of the imagination in relation to an impression is illustrated in those cases where experience and suggestion offer to the interpreting mind an uncertain sound, that is to say, where the present sense-signs are ambiguous. Here we obviously have a choice of interpretation. And it is found that, in these cases, what we see depends very much on what we wish to see. The interpretation adopted is still, in a sense, the result of suggestion, but of one

particular suggestion which the fancy of the moment determines. Or, to put it another way, the caprice of the moment causes the attention to focus itself in a particular manner, to direct itself specially to certain aspects and relations of objects.

The eye's interpretation of movement, already referred to, obviously offers a wide field for this play of selective imagination. When looking out of the window of a railway carriage, I can at will picture to my mind the trees and telegraph posts as moving objects. Sometimes the true interpretation is so uncertain that the least inclination to view the phenomenon in one way determines the result. This is illustrated in a curious observation of Sinsted. One evening, on approaching a windmill obliquely from one side, which under these circumstances he saw only as a dark silhouette against a bright sky, he noticed that the sails appeared to go, now in one direction, now in another, according as he imagined himself looking at the front or at the back of the windmill.*

In the interpretation of geometrical drawings, as those of crystals, there is, as I have observed, a general tendency to view the flat delineation as answering to a raised object, or a body in relief, according to the common run of our experience. Yet there are cases where experience is less decided, and where, consequently, we may regard any particular line as advancing or receding. And it is found that when we vividly imagine that the drawing is that of a convex or concave surface, we see it to be so, with all the force of a complete perception. The least disposition to see it in the other way will suffice to reverse the interpretation. Thus, in the following drawing, the reader can easily see at will

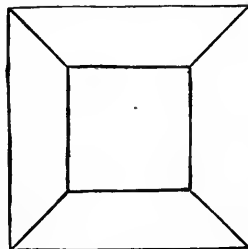


FIG. 5.

something answering to a truncated pyramid, or to the interior of a cooking vessel.

Similarly, in the accompanying figure of a transparent solid, I can at will select either of the two surfaces which approximately face the eye and regard it as the nearer, the other appearing as the hinder surface looked at through the body.

Again, in the next drawing, taken from Schroeder, one may, by an effort of will, see the diagonal step-like pattern, either as the

* I refer to the experiments made by Exner, Wundt, and others, in determining the time elapsing between the giving of a signal to a person and the execution of a movement in response. "It is found," says Wundt, "by these experiments that the exact moment at which a sense-impression is perceived depends on the amount of preparatory self-accommodation of attention." (See Wundt, *Physiologische Psychologie*, ch. xix., especially p. 735, et seq.)

* Quoted by Helmholtz, *op. cit.*, p. 626.

view from above of the edge of an advancing piece of wall at *a*, or as the view from below of the edge of an advancing (overhanging) piece of wall at *b*.

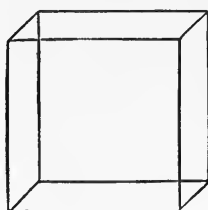


FIG. 6.

These last drawings are not in true perspective on either of the suppositions adopted, therefore the choice is easier. But even when an outline form is in perspective, a strenuous effort of imagination may suffice to

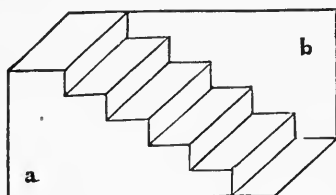


FIG. 7.

bring about a conversion of the appearance. Thus, if the reader will look at the drawing of the box-like solid (Fig. 3, p. 23), he will find that, after a trial or two, he succeeds in seeing it as a *concave* figure representing the cover and two sides of a box as looked at from within.*

Many of my readers, probably, share in my power of variously interpreting the relative position of bands or stripes on fabrics such as wall-papers, according to wish. I find that it is possible to view now this stripe or set of stripes as standing out in relief upon the others as a ground, now these others as advancing out of the first as a background. The difficulty of selecting either interpretation at will becomes greater, of course, in those cases where there is a powerful suggestion of some particular local arrangement, as, for example, the case of patterns much brighter than the ground, and especially of such as represent known objects, as flowers. Yet even here a strong effort of imagination will often suffice to bring about a conversion of the first appearance.

A somewhat similar choice of interpreta-

*When the drawing, by its adherence to the laws of perspective, does not powerfully determine the eye to see it in one way rather than in the other (as in Figs. 5 to 7), the disposition to see the one form rather than the other points to differences in the frequency of the original forms in our daily experience. At the same time, it is to be observed that, after looking at the drawing for a time under each aspect, the suggestion now of the one and now of the other forces itself on the mind in a curious and unaccountable way.

tion offers itself in looking at elaborate decorative patterns. When we strongly imagine any number of details to be elements of one figure, they seem to become so; and a given detail positively appears to alter in character according as it is viewed as an element of a more or less complex figure.

These examples show what force belongs to a vivid preconception, if this happens to fit only very roughly the impression of the moment, that is to say, if the interpretative image is one of the possible suggestions of the impression. The play of imagination takes a wider range in those cases where the impression is very indefinite in character, easily allowing of a considerable variety of imaginative interpretation.

I referred at the beginning of this account of sense-illusions to the readiness with which the mind deceives itself with respect to the nature and causes of the vague sensations which usually form the dim background of our mental life. A person of lively imagination, by trying to view these in a particular way, and by selectively attending to those aspects of the sensation which answer to the caprice of the moment, may give a variety of interpretations to one and the same set of sensations. For example, it is very easy to get confused with respect to those tactual and motor feelings which inform us of the position of our bodily members. And so, when lying in bed, and attending to the sensations connected with the legs, we may easily delude ourselves into supposing that these members are arranged in a most eccentric fashion. Similarly, by giving special heed to the sensations arising in connection with the condition of the skin at any part, we may amuse ourselves with the strangest fancies as to what is going on in these regions.

Again, when any object of visual perception is indistinct or indefinite in form, there is plainly an opening for this capricious play of fancy in transforming the actual. This is illustrated in the well-known pastime of discovering familiar forms, such as those of the human head and animals, in distant rocks and clouds, and of seeing pictures in the fire, and so on. The indistinct and indefinite shapes of the masses of rock, cloud, or glowing coal, offer an excellent field for creative fancy, and a person of lively imagination will discover endless forms in what, to an unimaginative eye, is a formless waste. Johannes Müller relates that, when a child, he used to spend hours in discovering the outlines of forms in the partly blackened and cracked stucco of the house that stood opposite to his own.* Here it is plain that, while experience and association are not wholly absent, but place certain wide limits on this process of castle-building, the spontaneous activity of the percipient mind is the great determining force.

So much as to the influence of a perfectly

* Ueber die phantastischen Gesichterscheinnungen, p. 45.

unfettered voluntary attention on the determination of the stage of preperception, and through this, of the resulting interpretation. Let us now pass to cases in which this direction of preperception follows not the caprice of the moment, but the leading of some fixed predisposition in the interpreter's mind. In these cases attention is no longer free, but fettered, only it is now fettered rather from within than from without; that is to say, the dominating preperception is much more the result of an independent bent of the imagination than of some suggestion forced on the mind by the actual impression of the moment.

Involuntary Mental Preadjustment.—If we glance back at the examples of capricious selection just noticed, we shall see that they are really limited not only by the character of the impression of the time, but also by the mental habits of the spectator. That is to say, we find that his fancy runs in certain definite directions, and takes certain habitual forms. It has already been observed that the percipient mind has very different attitudes with respect to various kinds of impression. Toward some it holds itself at a distance, while toward others, it at once bears itself familiarly; the former are such as answer to its previous habit and bent of imagination, the latter such as do not so answer.

This bent of the interpretative imagination, assumes, as we have already seen, two forms, that of a comparatively permanent disposition, and that of a temporary state of expectation or mental preparedness. Illusion may arise in connection with either of these forms. Let us illustrate both varieties, beginning with those which are due to a lasting mental disposition.

It is impossible here to specify all the causes of illusion residing in organized tendencies of the mind. The whole past mental life, with its particular shade of experience, its ruling emotions, and its habitual direction of fancy, serves to give a particular color to new impressions, and so to favor illusion. There is a "personal equation" in perception as in belief—an amount of erroneous deviation from the common average view of external things, which is the outcome of individual temperament and habits of mind. Thus, a naturally timid man will be in general disposed to see ugly and fearful objects where a perfectly unbiased mind perceives nothing of the kind; and the forms which these objects of dread will assume are determined by the character of his past experience, and by the customary direction of his imagination.

In perfectly healthy states of mind this influence of temperament and mental habit on the perception of external objects is, of course, very limited; it shows itself more distinctly, as we shall see, in modifying the estimate of things in relation to the æsthetic and other feelings. This applies to the mythical poetical way of looking at nature—a part of our subject to which we shall have to return later on

Passing now from the effect of such permanent dispositions, let us look at the more striking results of temporary expectancy of mind.

When touching on the influence of such a temporary mental attitude in the process of correct perception, I remarked that this readiness of mind might assume an indefinite or a definite form. We will examine the effect of each kind in the production of illusion.

Action of Sub-Expectation.—First of all, then, our minds may at the particular moment be disposed to entertain any one of a vaguely circumscribed group of images. Thus, to return to the example already referred to, when in Italy, we are in a state of readiness to frame any of the images that we have learnt to associate with this country. We may not be distinctly anticipating any one kind of object, but are nevertheless in a condition of *sub-expectation* with reference to a large number of objects. Accordingly, when an impression occurs which answers only very roughly to one of the associated images, there is a tendency to superimpose the image on the impression. In this way illusion arises. Thus, a man, when strolling in a cathedral, will be apt to take any kind of faint hollow sound for the soft tones of an organ.

The disposition to anticipate fact and reality in this way will be all the stronger if, as usually happens, the mental images thus lying ready for use have an emotional coloring. Emotion is the great disturber of all intellectual operations. It effects marvelous things, as we shall presently see, in the region of illusory belief, and its influence is very marked in the seemingly cooler region of external perception. The effect of any emotional excitement appears to be to give a preternatural vividness and persistence to the ideas answering to it, that is to say, the ideas which are its excitants, or which are otherwise associated with it. Owing to this circumstance, when the mind is under the temporary sway of any feeling, as, for example, fear, there will be a special readiness, to interpret objects by help of images congruent with the emotion. Thus, a man under the control of fear will be ready to see any kind of fear-inspiring object whenever there is any resemblance to such in the things actually present to his vision. The state of awe which the surrounding circumstances of a spiritualist *seance* inspires produces a general readiness of mind to perceive what is strange, mysterious, and apparently miraculous.

It is worth noting, perhaps, that those delightful half-illusions which imitative art seeks to produce are greatly favored by such a temporary attitude of the interpreting imagination. In the theater, for example, we are prepared for realizing the semblance of life that is to be unfolded before us. We come knowing that what is to be performed aims at representing a real action or actual series of events. We not improbably work ourselves into a slightly excited state in an

ticipation of such a representation. More than this, as the play progresses, the realization of what has gone before produces a strong disposition to believe in the reality of what is to follow. And this effect is proportionate to the degree of coherence and continuity in the action. In this way, there is a cumulative effect on the mind. If the action is good, the illusion, as every play-goer knows, is most complete toward the end.

Were it not for all this mental preparation, the illusory character of the performance would be too patent to view, and our enjoyment would suffer. A man is often aware of this when coming into a theater during the progress of a piece before his mind accommodates itself to the meaning of the play. And the same thing is recognizable in the fact that the frequenter of the theater has his susceptibility to histrionic delusion increased by acquiring a habit of looking out for the meaning of the performance. Persons who first see a play, unless they be of exceptional imagination and have thought much about the theater—as Charlotte Brontë, for instance—hardly feel the illusion at all. At least, this is true of the opera, where the departure from reality is so striking that the impression can hardly fail to be a ludicrous one, till the habit of taking the performance for what it is intended to be is fully formed.*

A similar effect of intellectual preadjustment is observable in the fainter degrees of illusion produced by pictorial art. Here the undeceiving circumstances, the flat surface, the surroundings, and so on, would sometimes be quite sufficient to prevent the least degree of illusion, were it not that the spectator comes prepared to see a representation of some real object. This is our state of mind when we enter a picture gallery or approach what we recognize as a picture on the wall of a room. A savage would not "realize" a slight sketch as soon as one accustomed to pictorial representation, and ready to perform the required interpretative act.†

So much as to the effect of an indefinite state of sub-expectation in misleading our perceptions. Let us now glance at the results of definite pre-imagination, including what are generally known as expectations.

Effects of Vivid Expectation.—Such expectations may grow out of some present object-

* Another side of histrionic illusion, the reading of the imitated feelings into the actors' minds, will be dealt with in a later chapter.

† In a finished painting of any size this preparation is hardly necessary. In these cases, in spite of the great deviations from truth in pictorial representation already touched on, the amount of essential agreement is so large and so powerful in its effect that even an intelligent animal will experience an illusion. Mr. Romanes sends me an interesting account of a dog, that had never been accustomed to pictures, having been put into a state of great excitement by the introduction of a portrait into a room, on a level with his eye. It is not at all improbable that the lower animals, even when sane, are frequently the subjects of slight illusion. That animals dream is a fact which is observed as long ago as the age of Lucretius

ive facts, which serve as signs of the expected event; or they may arise by way of verbal suggestion; or, finally, they may be due to internal spontaneous imagination.

In the first place, then, the expectations may grow out of previous perceptions, while, nevertheless, the direction of the expectation may be a wrong one. Here the interpreting imagination is, in a large sense, under the control of external suggestion, though, with respect to the particular impression that is misconstrued, it may be regarded as acting independently and spontaneously.

Illustrations of this effect in producing illusion will easily occur to the reader. If I happen to have heard that a particular person has been a soldier or clergyman, I tend to see the marks of the class in this person, and sometimes find that this process of recognition is altogether illusory. Again, let us suppose that a person is expecting a friend by a particular train. A passenger steps out of the train bearing a superficial resemblance to his friend; in consequence of which he falls into the error of false identification.

The delusions of the conjurer depend on a similar principle. The performer tells his audience that he is about to do a certain thing, for example, take a number of animals out of a small box which is incapable of holding them. The hearers, intent on what has been said, vividly represent to themselves the action described. And in this way their attention becomes bribed, so to speak, before hand, and fails to notice the inconspicuous movements, which would at once clear up the mystery. Similarly with respect to the illusions which overtake people at spiritualist *séances*. The intensity of the expectation of a particular kind of object excludes calm attention to what really happens, and the slightest impressions which answer to signs of the object anticipated are instantly seized by the mind and worked up into illusory perceptions.

It is to be noted that even when the impression cannot be made to tally exactly with the expectation, the force of the latter often effects a grotesque confusion of the perception. If, for example, a man goes into a familiar room in the dark in order to fetch something, and for a moment forgets the particular door by which he has entered, his definite expectation of finding things in a certain order may blend with the order of impressions experienced, producing for the moment a most comical illusion as to the actual state of things.

When the degree of expectation is unusually great, it may suffice to produce something like the counterfeit of a real sensation. This happens when the present circumstances are powerfully suggestive of an immediate event. The effect is all the more powerful, moreover, in those cases where the object or event expected is interesting or exciting, since here the mental image gains in vividness through the emotional excitement attending it. Thus, if I am watching

train off and know from all the signs that it is just about to start, I easily delude myself into the conviction that it has begun to start, when it is really still.* An intense degree of expectation may, in such cases, produce something indistinguishable from an actual sensation. This effect is seen in such common experiences as that the sight of food makes the mouth of a hungry man water; that the appearance of a surgical instrument produces a nascent sensation of pain; and that a threatening movement, giving a vivid anticipation of tickling, begets a feeling which closely approximates to the result of actual tickling.

One or two very striking instances of such imagined sensations are given by Dr. Carpenter.† Here is one. An officer who superintended the exhuming of a coffin rendered necessary through a suspicion of crime, declared that he already experienced the odor of decomposition, though it was afterwards found that the coffin was empty.‡

It is, of course, often difficult to say, in such cases as these, how far elements of actual sensation co-operate in the production of the illusions. Thus, in the case just mentioned, the odor of the earth may have been the starting-point in the illusion. In many cases, however, an imaginative mind appears to be capable of transforming a vivid expectation into a nascent stage of sensation. Thus, a mother thinking of her sick child in an adjoining room, and keenly on the alert for its voice, will now and again fancy she really hears it when others hear nothing at all.

Transition to Hallucination.—It is plain that in these cases illusion approaches to hallucination. Imagination, instead of waiting on sensation, usurps its place and imitates its appearance. Such a "subjective" sensation produced by a powerful expectation might, perhaps, by a stretch of language, be regarded as an illusion, in the narrow sense, in so far as it depends on the suggestive force of a complete set of external circumstances; on the other hand, it is clearly an hallucination in so far as it is the production of the semblance of an external impression without any external agency corresponding to this.

In the class of illusory expectations just considered the immediately present environment still plays a part, though a much less direct part than that observable in the first

large group of illusions. We will now pass to a second mode of illusory expectation, where imagination is still more detached from the present surroundings.

A common instance of this kind of expectation is the so-called "intuition," or presentiment, that something is going to happen, which expectation has no basis in fact. It does not matter whether the expectation has arisen by way of another's words or by way of personal inclinations. A strong wish for a thing will, in an exalted state of mind, beget a vivid anticipation of it. This subject will be touched on again under the Illusions of Belief. Here I am concerned to point out that such presentiments are fertile sources of sense-illusion. The history of Church miracles, visions, and the like amply illustrates the effect of a vivid anticipation in falsifying the perceptions of external things.

In persons of a lively imagination any recent occupation of the mind with a certain kind of mental image may suffice to beget something equivalent to a powerful mode of expectation. For example, we are told by Dr. Tuke that on one occasion a lady, whose imagination had been dwelling on the subject of drinking-fountains, "thought she saw in a road a newly erected fountain, and even distinguished an inscription upon it, namely, 'If any man thirst, let him come unto Me, and drink.' She afterward found that what she had actually seen was only a few scattered stones."* In many cases there seems to be a temporary preternatural activity of the imagination in certain directions, of which no very obvious explanation is discoverable. Thus, we sometimes find our minds dwelling on some absent friend, without being able to give any reason for this mental preoccupation. And in this way arise strong temporary leanings to illusory perception. It may be said, indeed, that all unwonted activity of the imagination, however it arises, has as its immediate result a temporary mode of expectation, definite or indefinite, which easily confuses our perceptions of external things.

In proportion as this pre-existing imaginative impulse becomes more powerful, the amount of actual impression necessary to transform the mental image into an illusory perception becomes less; and, what is more important, this transformation of the internal image involves a larger and larger displacement of the actual impression of the moment. A man whose mind is at the time strongly possessed by one kind of image, will tend to project this outward with hardly any regard to the actual external circumstances.

This state of things is most completely illustrated in many of the grosser illusions of the insane. Thus, when a patient takes any small objects, as pebbles, for gold and silver, under the influence of the dominant idea of being a millionaire, it is obvious that external

* Mentioned by Dr. Carpenter (*Mental Physiology*, p. 207), where other curious examples are to be found.

* This kind of illusion is probably facilitated by the fact that the eye is often performing slight movements without any clear consciousness of them. See what was said about the limits of sensibility, p. 15.

† *Mental Physiology*, fourth edit., p. 158.

‡ In persons of very lively imagination the mere representation of an object or event may suffice to bring about such a semblance of sensation. Thus, M. Taine (*op. cit.*, vol. i. p. 94) vouches for the assertion that "one of the most exact and lucid of modern novelists" when working out in his imagination the poisoning of one of his fictitious characters, had so vivid a gustatory sensation of arsenic that he was attacked by a violent fit of indigestion.

suggestion has very little to do with the self-deception. The confusions into which the patient often falls with respect to the persons before him show the same state of mind; for in many cases there is no discoverable individual resemblance between the person actually present and the person for whom he is taken.

It is evident that when illusion reaches this stage, it is scarcely distinguishable from what is specially known as hallucination. As I have remarked in setting out, illusion and hallucination shade one into the other much too gradually for us to draw any sharp line of demarcation between them. And here we see that hallucination differs from illusion only in the proportion in which the causes are present. When the internal imaginative impulse reaches a certain strength, it becomes self-sufficient, or independent of any external impression.

This intimate relation between the extreme form of active illusion and hallucination may be seen, too, by examining the physical conditions of each. As I have already remarked, active illusion has for its physiological basis a state of sub-excitation, or an exceptional condition of irritability in the structures engaged in the act of interpretative imagination. The greater the degree of this irritability, the less will be the force of external stimulation needed to produce the effect of excitation, and the more energetic will be the degree of this excitation. Moreover, it is plain that this increase in the strength of the excitation will involve an extension of the area of excitation till, by and by, the peripheral regions of the nervous system may be involved just as in the case of external stimulation. This accounts for the gradual displacement of the impression of the moment by the mental image. It follows that when the irritability reaches a certain degree, the amount of external stimulus needed may become a vanishing quantity, or the state of sub-excitation may of itself develop into one of full activity.

Hallucinations.—I do not propose to go very fully into the description and explanation of hallucinations here, since they fall to a large extent under the category of distinctly pathological phenomena. Yet our study of illusions would not be complete without a glance at this part of the subject.

Hallucination, by which I mean the projection of a mental image outward when there is no external agency answering to it, assumes one of two fairly distinct forms; it may present itself either as a semblance of an external impression with the minimum amount of interpretation, or as a counterfeit of a completely developed percept. Thus, a visual hallucination may assume the aspect of a sensation of light or color which we vaguely refer to a certain region of the external world, or of a vision of some recognizable object. All of us frequently have incomplete visual and auditory hallucinations of the first order, whereas the complete hallucinations of the second order are comparatively rare. The

first I shall call rudimentary, the second developed, hallucinations.

Rudimentary hallucinations may have either a peripheral or a central origin. They may first of all have their starting-point in those subjective sensations which, as we have seen, are connected with certain processes set up in the peripheral regions of the nervous system. Or, secondly, they may originate in a certain preternatural activity of the sensory centers, or "sensorium," in what has been called by German physiologists an automatic excitation of the central structures, which activity may probably diffuse itself downward to the peripheral regions of the nerves. Baillarger would call hallucinations of the former class "psycho-sensorial," those of the latter class purely "psychical," hallucinations.*

It is often a matter of great difficulty to determine which part of the nervous system is originally concerned in these rudimentary hallucinations. It is probable that in normal life they are most frequently due to peripheral disturbance. And it seems reasonable to suppose that where the hallucination remains in this initial stage of a very incompletely interpreted visual or auditory impression, whether in normal or abnormal life, its real physiological source is the periphery. For the automatic excitation of the centers would pretty certainly issue in the semblance of some definite, familiar variety of sense-impression which, moreover, as a part of a complex state known as a percept, would instantly present itself as a completely formed quasi-percept. In truth, we may pretty safely argue that if it is the center which is directly thrown into a state of activity, it will be thrown into the usual complex, that is to say, *perceptual*, mode of activity.

Let us now turn to hallucinations properly so called, that is to say, completely developed quasi-percepts. These commonly assume the form of visual or auditory hallucinations. Like the incomplete hallucinations, they may have their starting-point either in some disturbance in the peripheral regions of the nervous system or in the automatic activity of the central structures: or, to use the language of Baillarger, we may say that they are either "psycho-sensorial" or purely "psychical." A subjective visual sensation, arising from certain conditions in the retina and connected portions of the optic nerve, may by chance resemble a familiar impression, and so be at once interpreted as an effect of a particular external object. More frequently, however, the automatic activity of the centers must be regarded, either in part or altogether, as the physiological cause of the phenomenon. This is clearly the case when, on the subjective side, the hallucination answers to a preceding energetic activity of the imagination, as in the case of the visionary and the monomaniac. Sometimes, however, as we have

* See *Annales Médico-Psychologiques*, tom. vi. p. 168, etc., tom. vii. p. 1, etc.

seen, the hallucinatory percept answers to previous prolonged acts of perception, leaving a kind of reverberation in the structures concerned; and in this case it is obviously impossible to say whether the peripheral or central regions (if either) have most to do with the hallucination.*

The classifications of the causes of hallucination to be met with in the works of pathologists, bear out the distinction just drawn. Griesinger tells us (*op. cit.*, pp. 94, 95) that the general causes of hallucination are: (1) Local disease of the organ of sense; (2) a state of deep exhaustion either of mind or of body; (3) morbid emotional states, such as fear; (4) outward calm and stillness between sleeping and waking; and (5) the action of certain poisons, as haschisch, opium, belladonna. The first cause points pretty distinctly to a peripheral origin, whereas the others appear to refer mainly, if not exclusively, to central derangements. Excessive fatigue appears to predispose the central structures to an abnormal kind of activity, and the same effect may be brought about by emotional agitation and by the action of poisons. The fourth case mentioned here, absence of external stimulation, would naturally raise the nervous structures to an exceptional pitch of excitability. Such a condition would, moreover, prove favorable to hallucination by blurring the distinction between mental image and actual impression.

Hallucinations of Normal Life.—In normal life, perfect hallucinations, in the strict sense as distinct from illusions, are comparatively rare. Fully developed persistent hallucinations, as those of Nicolai, the Berlin bookseller, and of Mrs. A—, the lady cited by Sir D. Brewster, in his *Letters on Natural Magic*, point to the presence of incipient nervous disorder. In healthy life, on the other hand, while everybody is familiar with subjective sensations such as flying spots, phosphenes, ringing in the ears, few fall into the error of seeing or hearing distinct recognizable objects in the absence of all external impressions. In the lives of eminent men we read of such phenomena as very occasional events. Malebranche, for example, is said to have heard the voice of God calling him. Descartes says that, after a long confinement, he was followed by an invisible person, calling him to pursue his search for truth. Dr. Johnson narrates that he once heard his absent mother calling him. Byron tells us that he was sometimes visited by specters. Goethe records that he once saw

* I have already touched on the resonance of a sense-impression when the stimulus has ceased to act (see p. 16). The remarks in the text hold good of all such after-impressions, in so far as they take the form of fully developed percepts. A good example is the recurrence of the images of microscopic preparations, to which the anatomist is liable. (See Lewes, *Problems of Life and Mind*, third series, vol. ii. p. 299.) Since a complete hallucination is supposed to involve the peripheral regions of the nerve, the mere fact of shutting the eye would not, it is clear, serve as a test of the origin of the illusion.

an exact counterpart of himself coming toward him. Sir Walter Scott is said to have seen a phantom of the dead Byron. It is possible that all of us are liable to momentary hallucinations at times of exceptional nervous exhaustion, though they are too fugitive to excite our attention.

When not brought on by exhaustion or artificial means, the hallucinations of the sane have their origin in a preternatural power of imagination. It is well known that this power can be greatly improved by attention and cultivation. Goethe used to exercise himself in watching for ocular spectra, and could at will transform these subjective sensations into definite forms, such as flowers; and Johannes Müller found he had the same power.* Stories are told of portrait painters who could summon visual images of their sitters with a vividness equal to that of reality, and serving all the purposes of their art. Mr. Galton's interesting inquiries into the power of "visualizing" would appear to prove that many people can at will sport on the confines of the phantom world of hallucination. There is good reason to think that imaginative children tend to confuse mental images and percepts.†

The Hallucinations of Insanity.—The hallucinations of the insane are but a fuller manifestation of forces that we see at work in normal life. Their characteristic is that they simulate the form of distinctly present objects, the existence of which is not instantly contradicted by the actual surroundings of the moment.‡ The hallucinations have their origin partly in subjective sensations, which are probably connected with peripheral disturbances, partly and principally in central derangements.§ These include pro-

* That subjective sensation may become the starting-point in complete hallucination is shown in a curious instance given by Lazarus, and quoted by Taine, *op. cit.*, vol. i. p. 122, *et seq.* The German psychologist relates that, on one occasion in Switzerland, after gazing for some time on a chain of snow-peaks, he saw an apparition of an absent friend, looking like a corpse. He goes on to explain that this phantom was the product of an image of recollection which somehow managed to combine itself with the (positive) after-image left by the impression of the snow-surface.

† For an account of Mr. Galton's researches, see *Mind*, No. xix. Compare, however, Professor Bain's judicious observations on these results in the next number of *Mind*. The liability of children to take images for percepts, is illustrated by the experiences related in a curious little work, *Visions*, by E. H. Clarke, M.D. (Boston, U.S., 1878), pp. 17, 46, and 212.

‡ A common way of describing the relation of the hallucinatory to real objects, is to say that the former appear partly to cover and hide the latter.

§ Griesinger remarks that the forms of the hallucinations of the insane rarely depend on sense-disturbances alone. Though these are often the starting-point, it is the whole mental complexion of the time which gives the direction to the imagination. The common experience of seeing rats and mice running about during a fit of *delirium tremens* very well illustrates the co-operation of peripheral impressions not usually attended to, and possibly magnified by the morbid state of sensibility of the time (in this case flying spots, *musca volitantes*), with emotional conditions. (See Griesinger, *loc. cit.*, p. 96.)

found emotional changes, which affect the ruling mental tone, and exert a powerful influence on the course of the mental images. The hallucinations of insanity are due to a projection of mental images which have, owing to certain circumstances, gained a preternatural persistence and vividness. Sometimes it is the images that have been dwelt on with passionate longing before the disease, sometimes those which have grown most habitual through the mode of daily occupation,* and sometimes those connected with some incident at or near the time of the commencement of the disease.

In mental disease, auditory hallucinations play a part no less conspicuous than visual.† Patients frequently complain of having their thoughts spoken to them, and it is not uncommon for them to imagine that they are addressed by a number of voices at the same time.‡

These auditory hallucinations offer a good opportunity for studying the gradual growth of centrally originating hallucinations. In the early stages of the disease, the patient partly distinguishes his representative from his presentative sounds. Thus, he talks of sermons being composed to him *in his head*. He calls these "internal voices," or "voices of the soul." It is only when the disease gains ground and the central irritability increases that these audible thoughts become distinctly projected as external sounds into more or less definite regions of the environment. And it is exceedingly curious to notice the different directions which patients give to these sounds, referring them now to a quarter above the head, now to a region below the floor, and so on.§

Range of Sense-Illusions.—And now let us glance back to see the path we have traversed. We set out with an account of per-

fectly normal perception, and found, even here, in the projection of our sensations of color, sound, etc., into the environment or to the extremities of the organism, something which, from the point of view of physical science, easily wears the appearance of an ingredient of illusion.

Waiving this, however, and taking the word illusion as commonly understood, we find that it begins when the element of imagination no longer answers to a present reality or external fact in any sense of this expression. In its lowest stages illusion closely counterfeits correct perception in the balance of the direct factor, sensation, and the indirect factor, mental reproduction or imagination. The degree of illusion increases in proportion as the imaginative element gains in force relatively to the present impression; till, in the wild illusions of the insane, the amount of actual impression becomes evanescent. When this point is reached, the act of imagination shows itself as a purely creative process, or an hallucination.

While we may thus trace the progress of illusion toward hallucination by means of the gradual increase in force and extent of the imaginative, or indirect, as opposed to the sensuous, or direct, element in perception, we have found a second starting-point for this movement in the mechanism of sensation, involving, as it does, the occasional production of "subjective sensations." Such sensations constitute a border-land between the regions of illusion in the narrow sense, and hallucination. In their simplest and least developed form they may be regarded, at least in the case of hearing and sight, as partly hallucinatory; and they serve as a natural basis for the construction of complete hallucinations, or hallucinatory percepts.

In these different ways, then, the slight, scarcely noticeable illusions of normal life lead up to the most startling hallucinations of abnormal life. From the two poles of the higher centers of attention and imagination on the one side, and the lower regions of nervous action involved in sensation on the other side, issue forces which may, under certain circumstances, develop into full hallucinatory percepts. Thus closely is healthy attached to morbid mental life. There seems to be no sudden break between our most sober every-day recognitions of familiar objects and the wildest hallucinations of the demented. As we pass from the former to the latter, we find that there is never any abrupt transition, never any addition of perfectly new elements, but only that the old elements go on combining in ever new proportions.

The connection between the illusory side of our life and insanity may be seen in another way. All illusion has as its negative condition an interruption of the higher intellectual processes, the due control of our mental representations by reflection and reason. In the case of passive illusions, the error arises from our inability to subordinate the suggestion made by some feature of the present

* Wundt (*Physiologische Psychologie*, p. 652) tells us of an insane woodman who saw logs of wood on all hands in front of the real objects.

† It is stated by Baillarger (*Mémoires de l'Académie Royale de Médecine*, tom. xii. p. 273, etc.) that while visual hallucinations are more frequent than auditory in healthy life, the reverse relation holds in disease. At the same time, Griesinger remarks (*loc. cit.*, p. 68) that visual hallucinations are rather more common than auditory in disease also. This is what we should expect from the number of subjective sensations connected with the peripheral organ of vision. The greater relative frequency of auditory hallucinations in disease, if made out, would seem to depend on the close connection between articulate sounds and the higher centers of intelligence, which centers are naturally the first to be thrown out of working order. It is possible, moreover, that auditory hallucinations are quite as common as visual in states of comparative health, though more easily overlooked. Professor Huxley relates that he is liable to auditory though not to visual hallucinations. (See *Elementary Lessons in Physiology*, p. 267.)

‡ See Baillarger, *Mémoires de l'Académie Royale de Médecine*, tom. xii. p. 273, et seq.

§ See Baillarger, *Annales Médico-Psychologiques*, tom. vi. p. 168 et seq.; also tom. xii. p. 273, et seq. Compare Griesinger, *op. cit.* In a curious work entitled *Du Démon de Socrate* (Paris, 1856), M. Lélut seeks to prove that the philosopher's admonitory voice was an incipient auditory hallucination symptomatic of a nascent stage of mental alienation.

impression to the result of a fuller inspection of the object before us, or of a wider reflection on the past. In other words, our minds are dominated by the partial and the particular, to the exclusion of the total or the general. In active illusions, again, the powers of judgment and reflection, including those of calm perception itself, temporarily vacate their throne in favor of imagination. And this same suspension of the higher intellectual functions, the stupefaction of judgment and reflection made more complete and permanent, is just what characterizes insanity.

We may, perhaps, express this point of connection between the illusions of normal life and insanity by help of a physiological hypothesis. If the nervous system has been slowly built up, during the course of human history, into its present complex form, it follows that those nervous structures and connections which have to do with the higher intellectual processes, or which represent the larger and more general relations of our experience, have been most recently evolved. Consequently, they would be the least deeply organized, and so the least stable; that is to say, the most liable to be thrown *hors de combat*. This is what happens temporarily in the case of the sane, when the mind is held fast by an illusion. And, in states of insanity, we see the process of nervous dissolution beginning with the same nervous structures, and so taking the reverse order of the process of evolution.* And thus, we may say that throughout the mental life of the most sane of us, these higher and more delicately balanced structures are constantly in danger of being reduced to that state of inefficiency, which in its full manifestation is mental disease.

Does this way of putting the subject seem alarming? Is it an appalling thought that our normal mental life is thus intimately related to insanity, and graduates away into it by such fine transitions? A moment's reflection will show that the case is not so bad as it seems. It is well to remind ourselves that the brain is a delicately adjusted organ, which very easily gets disturbed, and that the best of us are liable to become the victims of absurd illusion if we habitually allow our imaginations to be overheated, whether by furious passion or by excessive indulgence in the pleasures of day-dreaming, or in the intoxicating mysteries of spiritualist stances. But if we take care to keep our heads cool and avoid unhealthy degrees of mental excitement, we need not be very anxious on the ground of our liability to this kind of error. As I have tried to show, our most frequent illusions are necessarily connected with something exceptional, either in the organism or in the environment. That is to say, it is of the nature of illusion in healthy conditions of body and mind to be

something very occasional and relatively unimportant. Our perceptions may be regarded as the reaction of the mind on the impressions borne in from the external world, or as a process of adjustment of internal mental relations to external physical relations. If this process is, in the main, a right one, we need not greatly trouble, because it is not invariably so. We should accept the occasional failure of the intellectual mechanism as an inseparable accompaniment of its general efficiency.

To this it must be added that many of the illusions described above can hardly be called cases of non-adaptation at all, since they have no relation to the practical needs of life, and consequently are, in a general way, unattended to. In other cases, again, namely, where the precise nature of a present sensation, being practically an unimportant matter, is usually unattended to, as in the instantaneous recognition of objects by the eye under changes of illumination, etc., the illusion is rather a part of the process of adaptation, since it is much more important to recognize the permanent object signified by the sensation than the precise nature of the present sensational "sign" itself.

Finally, it should never be forgotten that in normal states of mind there is always the possibility of rectifying an illusion. What distinguishes abnormal from normal mental life is the persistent occupation of the mind by certain ideas, so that there is no room for the salutary corrective effect of reflection on the actual impression of the moment, by which we are wont to "orientate," or take our bearings as to the position of things about us. In sleep, and in certain artificially produced states, much the same thing presents itself. Images become realities just because they are not instantly recognized as such by a reference to the actual surroundings of the moment. But in normal waking life this power of correction remains with us. We may not exercise it, it is true, and thus the illusion will tend to become more or less persistent and recurring; for the same law applies to true and to false perception: repetition makes the process easier. But if we only choose to exert ourselves, we can always keep our illusions in a nascent or imperfectly developed stage. This applies not only to those half-illusions into which we voluntarily fall, but also to the more irresistible passive illusions, and those arising from an over-excited imagination. Even persons subject to hallucinations, like Nicolai of Berlin, learn to recognize the unreal character of these phantasms. Sir W. Scott tells us, in his entertaining work *Demonology and Witchcraft*, that one of the greatest poets of his age, when asked if he believed in ghosts, answered, "No, madam, I have seen too many of them." However irresistible our sense-illusions may be, so long as we are under the sway of particular impressions or mental images, we can, when resolved to do so, undeceive ourselves by carefully attending to

* This is well brought out by Dr. J. Hughlings Jackson, in the papers in *Brain*, already referred to.

the actual state of things about us. And in many cases, when once the correction is made, the illusion seems an impossibility. By no effort of imagination are we able to throw ourselves back into the illusory mental condition. So long as this power of dispelling the illusion remains with us, we need not be alarmed at the number and variety of the momentary misapprehensions to which we are liable.

CHAPTER VII.

DREAMS.

THE phenomena of dreams may well seem at first sight to form a world of their own, having no discoverable links of connection with the other facts of human experience. First of all, there is the mystery of sleep, which quietly shuts all the avenues of sense, and so isolates the mind from contact with the world outside. To gaze at the motionless face of a sleeper temporarily rapt from the life of sight, sound, and movement—which, being common to all, binds us together in mutual recognition and social action—has always something awe-inspiring. This external inaction, this torpor of sense and muscle, how unlike to the familiar waking life, with its quick responsiveness and its overflowing energy! And then, if we look at dreams from the inside, we seem to find but the reverse face of the mystery. How inexpressibly strange does the late night-dream seem to a person on waking! He feels he has been seeing and hearing things no less real than those of waking life; but things which belong to an unfamiliar world, an order of sights and a sequence of events quite unlike those of waking experience; and he asks himself in his perplexity where that once visited region really lies, or by what magic power it was suddenly and for a moment created for his vision. In truth, the very name of dream suggests something remote and mysterious, and when we want to characterize some impression or scene which by its passing strangeness filled us with wonder, we naturally call it dream-like.

Theories of Dreams.—The earliest theories respecting dreams illustrate very clearly this perception of the remoteness of dream-life from waking experience. By the simple mind of primitive man this dream-world is regarded as similar in its nature or structure to our common world, only lying remote from this. The savage conceives that when he falls asleep, his second self leaves his familiar body and journeys forth to unfamiliar regions, where it meets the departed second selves of his dead ancestors, and so on. From this point of view, the experience of the night, though equal in reality to that of the day, is passed in a wholly disconnected region.*

* See E. B. Tylor, *Primitive Culture*, ch. xi.; cf. Herbert Spencer, *Principles of Sociology*, ch. x.

A second and more thoughtful view of dreams, marking a higher grade of intellectual culture, is that these visions of the night are symbolic pictures unfolded to the inner eye of the soul by some supernatural being. The dream-experience is now, in a sense, less real than it was before, since the phantasms that wear the guise of objective realities are simply images spread out to the spirit's gaze, or the direct utterance of a divine message. Still, this mysterious contact of the mind with the supernatural is regarded as a fact, and so the dream assumes the appearance of a higher order of experience. Its one point of attachment to the experience of waking life lies in its symbolic function; for the common form which this supernatural view assumes is that the dream is a dim prevision of coming events. Artemidorus, the great authority on dream interpretation (*oneirocritics*) for the ancient world, actually defines a dream as "a motion or fiction of the soul in a diverse form signifying either good or evil to come;" and even a logician like Porphyry ascribes dreams to the influence of a good demon, who thereby warns us of the evils which another and bad demon is preparing for us. The same mode of viewing dreams is quite common to-day, and many who pride themselves on a certain intellectual culture, and who imagine themselves to be free from the weakness of superstition, are apt to talk of dreams as of something mysterious, if not distinctly ominous. Nor is it surprising that phenomena which at first sight look so wild and lawless, should still pass for miraculous interruptions of the natural order of events.*

Yet, in spite of this obvious and impressive element of the mysterious in dream-life, the scientific impulse to illuminate the less known by the better known has long since begun to play on this obscure subject. Even in the ancient world a writer might here and there be found, like Democritus or Aristotle, who was bold enough to put forward a natural and physical explanation of dreams. But it has been the work of modern science to provide something like an approximate solution of the problem. The careful study of mental life in its intimate union with bodily operations, and the comparison of dream-combinations with other products of the imagination, normal as well as morbid, have gradually helped to dissolve a good part of the mystery which once hung like an opaque mist about the subject. In this way, our dream-operations have been found to have a much closer connection with our waking experiences than could be supposed on a superficial view. The materials of our dreams are seen, when closely examined, to be drawn from our waking experience. Our waking consciousness acts in numberless ways on our dreams, and these again in unsuspected ways influence

* For a fuller account of the different modes of dream-interpretation, see my article "Dream," in the ninth edition of the *Encyclopædia Britannica*.

our waking mental life.* Not only so, it is found that the quaint chaotic play of images in dreams illustrates mental processes and laws which are distinctly observable in waking thought. Thus, for example, the apparent objective reality of these visions has been accounted for, without the need of resorting to any supernatural agency, in the light of a vast assemblage of facts gathered from the by-ways, so to speak, of waking mental life. I need hardly add that I refer to the illusions of sense dealt with in the foregoing chapters.

Dreams are to a large extent the semblance of external perceptions. Other psychical phenomena, as self-reflection, emotional activity, and so on, appear in dream-life, but they do so in close connection with these quasi-perceptions. The name "vision," given by old writers to dreams, sufficiently points out this close affinity of the mental phenomena to sense-perception; and so far as science is concerned, they must be regarded as a peculiar variety of sense-illusion. Hence the appropriateness of studying them in close connection with the illusions of perception of the waking state. Though marked off by the presence of very exceptional physiological conditions, they are largely intelligible by help of these physiological and psychological principles which we have just been considering.

The State of Sleep.—The physiological explanation of dreams must, it is plain, set out with an account of the condition of the organism known as sleep. While there is here much that is uncertain, there are some things which are fairly well known. Recent physiological observation has gone to prove that during sleep all the activities of the organism are appreciably lowered. Thus, for example, according to Testa, the pulse falls by about one-fifth. This lowering of the organic functions appears, under ordinary circumstances, to increase toward midnight, after which there is a gradual rising.

The nervous system shares in this general depression of the vital activities. The circulation being slower, the process of reparation and nutrition of the nerves is retarded, and so their degree of excitability diminished. This is clearly seen in the condition of the peripheral regions of the nervous system, including the sense-organs, which appear to be but very slightly acted on by their customary stimuli.

The nervous centers must participate in this lethargy of the system. In other words, the activity of the central substance is lowered, and the result of this is plainly seen in what is usually thought of as the characteristic feature of sleep, namely, a transition from vigorous mental activity or intense and clear consciousness, to comparative inactivity or faint and obscure consciousness. The cause of this condition of the centers is supposed

to be the same as that of the torpidity of all the other organs in sleep, namely, the retardation of the circulation. But, though there is no doubt as to this, the question of the proximate physiological conditions of sleep is still far from being settled. Whether during sleep the blood-vessels of the brain are fuller or less full than during waking, is still a moot point. Also the qualitative condition of the blood in the cerebral vessels is still a matter of discussion.*

Since the effect of sleep is to lower central activity, the question naturally occurs whether the nervous centers are ever rendered inactive to such an extent as to interrupt the continuity of our conscious life. This question has been discussed from the point of view of the metaphysician, of the psychologist, and of the physiologist, and in no case is perfect unanimity to be found. The metaphysical question, whether the soul as a spiritual substance is capable of being wholly inactive, or whether it is not in what seem the moments of profoundest unconsciousness partially awake—the question so warmly discussed by the Cartesians, Leibnitz, etc.—need not detain us here.

Of more interest to us are the psychological and the physiological discussions. The former seeks to settle the question by help of introspection and memory. On the one side, it is urged against the theory of unbroken mental activity, that we remember so little of the lowered consciousness of sleep.† To this it is replied that our forgetfulness of the contents of dream-consciousness, even if this were unbroken, would be fully accounted for by the great dissimilarity between dreaming and waking mental life. It is urged, moreover, on this side that a sudden rousing of a man from sleep always discovers him in the act of dreaming, and that this goes to prove the uniform connection of dreaming and sleeping. This argument, again, may be met by the assertion that our sense of the duration of our dreams is found to be grossly erroneous; that, owing to the rapid succession of the images, the realization of which would involve a long duration, we enormously exaggerate the length of dreams in retrospection.‡ From this it is argued that the dream which is recalled on our being suddenly awakened may have had its whole course during the transition state of waking.

Again, the fact that a man may resolve, on going to sleep, to wake at a certain hour, has often been cited in proof of the persistence of a degree of mental activity even in perfectly sound sleep. The force of this consideration, however, has been explained away by saying that the anticipation of rising at an

* For an account of the latest physiological hypotheses as to the proximate cause of sleep, see Radestock, *op. cit.*, appendix.

† Plutarch, Locke, and others give instances of people who never dream. Lessing asserted of himself that he never knew what it was to dream.

‡ The error touched on here will be fully dealt with under Illusions of Memory.

* For a fuller account of the reactions of dreams on waking consciousness, see Paul Radestock, *Schlaf und Traum*. The subject is touched on later, under the Illusions of Memory.

unusual hour necessarily produces a slight amount of mental disquietude, which is quite sufficient to prevent sound sleep, and therefore to expose the sleeper to the rousing action of faint external stimuli.

While the purely psychological method is thus wholly inadequate to solve the question, physiological reasoning appears also to be not perfectly conclusive. Many physiologists, not unnaturally desirous of upsetting what they regard as a gratuitous metaphysical hypothesis, have pronounced in favor of an absolutely dreamless or unconscious sleep. From the physiological point of view, there is no mystery in a totally suspended mental activity. On the other hand, there is much to be said on the opposite side, and perhaps it may be contended that the purely physiological evidence rather points to the conclusion that central activity, however diminished during sleep, always retains a minimum degree of intensity. At least, one would be disposed to argue in this way from the analogy of the condition of the other functions of the organism during sleep. Possibly this modicum of positive evidence may more than outweigh any slight presumption against the doctrine of unbroken mental activity drawn from the negative circumstance that we remember so little of our dream-life.*

Such being the state of physiological knowledge respecting the immediate conditions of sleep, we cannot look for any certain information on the nature of that residual mode of cerebral activity which manifests itself subjectively in dreams. It is evident, indeed, that this question can only be fully answered when the condition of the brain as a whole during sleep is understood. Meanwhile we must be content with vague hypotheses.

It may be said, for one thing, that during sleep the nervous substance as a whole is less irritable than during waking hours. That is to say, a greater amount of stimulus is needed to produce any conscious result.† This appears plainly enough in the case of the peripheral sense-organs. Although these are not, as it is often supposed, wholly inactive during sleep, they certainly require a more potent external stimulus to rouse them to action. And what applies to the peripheral regions applies to the centers. In truth, it is clearly impossible to distinguish between the diminished irritability of the peripheral and that of the central structures.

At first sight it seems contradictory to the above to say that stimuli which have little effect on the centers of consciousness during waking life produce an appreciable result in sleep. Nevertheless, it will be found that this is the case. Thus organic processes which scarcely make themselves known to

the mind in a waking state, may be shown to be the originators of many of our dreams. This fact can only be explained on the physical side by saying that the special cerebral activities engaged in an act of attention are greatly liberated during sleep by the comparative quiescence of the external senses. These activities, by co-operating with the faint results of the stimuli coming from the internal organs, serve very materially to increase their effect.

Finally, it is to be observed that, while the centers thus respond with diminished energy to peripheral stimuli, external and internal, they undergo a direct, or "automatic," mode of excitation, being roused into activity independently of an incoming nervous impulse. This automatic stimulation has been plausibly referred to the action of the products of decomposition accumulating in the cerebral blood-vessels.* It is possible that there is something in the nature of this stimulation to account for the force and vividness of its conscious results, that is to say, of dreams.

The Dream State.—Let us now turn to the psychic side of these conditions, that is to say, to the general character of the mental states known as dreams. It is plain that the closing of the avenues of the external senses, which is the accompaniment of sleep, will make an immense difference in the mental events of the time. Instead of drawing its knowledge from without, noting its bearings in relation to the environment, the mind will now be given over to the play of internal imagination. The activity of fancy will, it is plain, be unrestricted by collision with external fact. The internal mental life will expand in free picturesque movement.

To say that in sleep the mind is given over to its own imaginings, is to say that the mental life in these circumstances will reflect the individual temperament and mental history. For the play of imagination at any time follows the lines of our past experience more closely than would at first appear, and being colored with emotion, will reflect the predominant emotional impulses of the individual mind. Hence the saying of Heraclitus, that, while in waking we all have a common world, in sleep we have each a world of our own.

This play of imagination in sleep is furthered by the peculiar attitude of attention. When asleep the voluntary guidance of attention ceases; its direction is to a large extent determined by the contents of the mind at the moment. Instead of holding the images and ideas, and combining them according to some rational end, the attention relaxes its energies and succumbs to the force of imagination. And thus, in sleep, just as in the condition of reverie or day-dreaming, there is an abandonment of the fancy to its own wild ways.

It follows that the dream-state will not

* For a very full, fair, and thoughtful discussion of this whole question, see Radestock, *op. cit.*, ch. iv.

† This may be technically expressed by saying that the liminal intensity (*Schwelle*) is raised during sleep

* See Wundt, *Physiologische Psychologie*, pp. 188-191.

appear to the mind as one of fancy, but as one of actual perception, and of contact with present reality. Dreams are clearly illusory, and, unlike the illusions of waking life, are complete and persistent.* And the reason of this ought now to be clear. First of all, the mind during sleep wants what M. Taine calls the corrective of a present sensation. When awake under ordinary circumstances, any momentary illusion is at once set right by a new act of orientation. The superior vividness of the external impression cannot leave us in any doubt, when calm and self-possessed, whether our mental images answer to present realities or not. On the other hand, when asleep, this reference to a fixed objective standard is clearly impossible. Secondly, we may fairly argue that the mental images of sleep approximate in character to external impressions. This they do to some extent in point of intensity, for, in spite of the diminished excitability of the centers, the mode of stimulation which occurs in sleep may, as I have hinted, involve an energetic cerebral action. And, however this be, it is plain that the image will gain a pre-natural force through the greatly narrowed range of attention. When the mind of the sleeper is wholly possessed by an image or group of images, and the attention kept tied down to these, there is a maximum re-enforcement of the images. But this is not all. When the attention is thus held captive by the image, it approximates in character to an external impression in another way. In our waking state, when our powers of volition are intact, the external impression is characterized by its fixity or its obdurate resistance to our wishes. On the other hand, the mental image is fluent, accommodating, and disappears and reappears according to the direction of our volitions. In sleep, through the suspension of the higher voluntary power of attention, the mental image seems to lord it over our minds just as the actual impression of waking life.

This much may suffice, perhaps, by way of a general description of the sleeping and dreaming state. Other points will make themselves known after we have studied the contents and structure of dreams in detail.

Dreams are commonly classified (*e.g.*, by Wundt) with hallucinations, and this rightly, since, as their common appellation of "vision" suggests, they are for the most part the semblance of percepts in the absence of external impressions. At the same time, recent research goes to show that in many dreams something answering to the "external impression" in waking perception is the starting-point. Consequently, in order to be as accurate as possible, I shall divide dreams into illusions (in the narrow sense) and hallucinations.

Dream-Illusions.—By dream-illusions I mean those dreams which set out from some peripheral nervous stimulation, internal or external. That the organic processes of digestion, respiration, etc., act as stimuli to the centers in sleep is well known. Thus, David Hartley assigns as the second great source of dreams "states of the body."* But it is not so well known to what an extent our dreams may be influenced by stimuli acting on the exterior sense-organs. Let us first glance at the action of such external stimuli.

Action of External Stimuli.—During sleep the eyes are closed, and consequently the action of external light on the retina impeded. Yet it is found that even under these circumstances any very bright light suddenly introduced is capable of stimulating the optic fibers, and of affecting consciousness. The most common form of this is the effect of bright moonlight, and of the early sun's rays. Krauss tells a funny story of his having once, when twenty-six years old, caught himself, on waking, in the act of stretching out his arms toward what his dream-fancy had pictured as the image of his mistress. When fully awake, this image resolved itself into the full moon.† It is not improbable, as Radestock remarks, that the rays of the sun or moon are answerable for many of the dreams of celestial glory which persons of a highly religious temperament are said to experience.

External sounds, when not sufficient to rouse the sleeper, easily incorporate themselves into his dreams. The ticking of a watch, the stroke of a clock, the hum of an insect, the song of a bird, the patter of rain, was common stimuli to the dream-phantasy. M. Alf. Maury tells us, in his interesting account of the series of experiments to which he submitted himself in order to ascertain the result of external stimulation on the mind during sleep, that when a pair of tweezers was made to vibrate near his ear, he dreamt of bells, the tocsin, and the events of June, 1848.‡ Most of us, probably, have gone through the experience of impolitely falling asleep when some one was reading to us, and of having dream-images suggested by the sounds that were still indistinctly heard. Scherner gives an amusing case of a youth who was permitted to whisper his name into the ear of his obdurate mistress, the consequence of which was that the lady contracted a habit of dreaming about him, which led to a felicitous change of feeling on her part.§

The two lower senses, smell and taste, seem to play a less important part in the production of dream-illusions. Radestock says that the odor of flowers in a room easily leads to visual images of hot-houses, perfumery shops, and so on; and it is probable that the contents of the mouth may occasionally act as a stimulus to the organ of taste,

* There is, indeed, sometimes an undertone of critical reflection, which is sufficient to produce a feeling of uncertainty and bewilderment, and in very rare cases to amount to a vague consciousness that the mental experience is a dream.

* *Observations on Man*, Part I. ch. iii. sec. 5.

† Quoted by Radestock, *op. cit.*, p. 110.

‡ *Le Sommeil et les Rêves*, p. 132, et seq.

§ *Das Leben des Traumes*, p. 369. Other instances are related by Beattie and Abercrombie.

and so give rise to corresponding dreams. As Radestock observes, these lower sensations do not commonly make known their quality to the sleeper's mind. They become transformed at once into visual, instead of into olfactory or gustatory percepts. That is to say, the dreamer does not imagine himself smelling or tasting, but seeing an object.

The contact of objects with the tactual organ is one of the best recognized causes of dreams. M. Maury found that when his lips were tickled, his dream-fancy interpreted the impression as of a pitch plaster being torn off his face. An unusual pressure on any part of the body, as, for example, from contact with a fellow-sleeper, is known to give rise to a well marked variety of dream. Our own limbs may even appear as foreign bodies to our dream-imagination, when through pressure they become partly paralyzed. Thus, on one occasion, I awoke from a miserable dream, in which I felt sure I was grasping somebody's hand in bed, and I was racked by terrifying conjectures as to who it might be. When fully awake, I discovered that I had been lying on my right side, and clasping the wrist of the right arm (which had been rendered insensible by the pressure of the body) with the left hand.

In close connection with these stimuli of pressure are those of muscular movement, whether unimpeded or impeded. We need not enter into the difficult question how far the "muscular sense" is connected with the activity of the motor nerves, and how far with sensory fibers attached to the muscular or the adjacent tissues. Suffice it to say that an actual movement, a resistance to an attempted movement, or a mere disposition to movement, whether consequent on a surplus of motor energy or on a sensation of discomfort or fatigue in the part to be moved, somehow or other makes itself known to our minds, even when we are deprived of the assistance of vision. And these feelings of movement, impeded or unimpeded, are common initial impulses in our dream-experiences. It is quite a mistake to suppose that dreams are built up out of the purely passive sensations of sight and hearing. A close observation will show that in nearly every dream we imagine ourselves either moving among the objects we perceive or striving to move when some weighty obstacle obstructs us. All of us are familiar with the common forms of nightmare, in which we strive hopelessly to flee from some menacing evil, and this dream-experience, it may be presumed, frequently comes from a feeling of strain in the muscles, due to an awkward disposition of the limbs during sleep. The common dream-illusion of falling down a vast abyss is plausibly referred by Wundt to an involuntary extension of the foot of the sleeper.

Action of Internal Stimuli.—Let us now pass from the action of stimuli lying outside the organism, to that of stimuli lying within the peripheral regions of the sense-organs. I have already spoken of the influence of

subjective sensations of sight, hearing, etc., on the illusions of waking life, and it is now to be added that these sensations play an important part in our dream-life. Johannes Müller lays great prominence on the part taken by ocular spectra in the production of dreams. As he observes, the apparent rays of light, light-patches, mists of light, and so on, due to changes of blood-pressure in the retina, only manifest themselves clearly when the eyes are closed and the more powerful effect of the external stimulus cut off. These subjective spectra come into prominence in the sleepy condition, giving rise to what M. Maury calls "hallucinations hypnagogiques," and which he regards (after Gruithuisen) as the chaos out of which the dream-cosmos is evolved.* They are pretty certainly the starting-point in those picturesque dreams in which figure a number of bright objects, such as beautiful birds, butterflies, flowers, or angels.

That the visual images of our sleep do often involve the peripheral regions of the organ of sight, seems to be proved by the singular fact that they sometimes persist after waking. Spinoza and Jean Paul Richter both experienced this survival of dream-images. Still more pertinent is the fact that the effects of retinal fatigue are producible by dream-images. The physiologist Gruithuisen had a dream, in which the principal feature was a violet flame, and which left behind it, *after waking*, for an appreciable duration, a complementary image of a yellow spot.†

Subjective auditory sensations appear to be much less frequent causes of dream-illusions than corresponding visual sensations. Yet the rushing, roaring sound caused by the circulation of the blood in the ear is, probably, a not uncommon starting-point in dreams. With respect to subjective sensations of smell and taste, there is little to be said. On the other hand, subjective sensations due to varying conditions in the skin are a very frequent exciting cause of dreams. Variations in the state of tension of the skin, brought about by alteration of position, changes in the character of the circulation, the irradiation of heat to the skin or the loss of the same, chemical changes—these are known to give rise to a number of familiar sensations, including those of tickling, itching, burning, creeping, and so on; and the effects of these sensations are distinctly traceable in our dreams. For example, the exposure of a part of the body through a loss of the bed-clothes is a frequent excitant of distressing dreams. A cold foot suggests that the sleeper is walking over snow or ice. On the other hand, if the cold foot happens to touch a warm part of the body, the dream-fancy

* *Le Sommeil et les Rêves*, p. 42, et seq.

† *Beiträge zur Physiognosie und Hautagnosie*, p. 256. For other cases see H. Meyer, *Physiologie der Nervenfasern*, p. 309; and Strümpell, *Die Natur und Entstehung der Träume*, p. 125.

constructs images of walking on burning lava, and so on.

These sensations of the skin naturally conduct us to the organic sensations as a whole; that is to say, the feelings connected with the varying condition of the bodily organs. These include the feelings which arise in connection with the processes of digestion, respiration, and circulation, and the condition of various organs according to their state of nutrition, etc. During our waking life these organic feelings coalesce for the most part, forming as the "vital sense" an obscure background for our clear discriminative consciousness, and only come forward into this region when very exceptional in character, as when respiration or digestion is impeded, or when we make a special effort of attention to single them out.* When we are asleep, however, and the avenues of external perception are closed, they assume greater prominence and distinctness. The centers, no longer called upon to react on stimuli coming from without the organism, are free to react on stimuli coming from its hidden recesses. So important a part, indeed, do these organic feelings take in the dream-drama, that some writers are disposed to regard them as the great, if not the exclusive, cause of dreams. Thus, Schopenhauer held that the excitants of dreams are impressions received from the internal regions of the organism through the sympathetic nervous system.†

It is hardly necessary, perhaps, to give many illustrations of the effect of such organic sensations on our dreams. Among the most common provocatives of dreams are sensations connected with a difficulty in breathing, due to the closeness of the air or to the pressure of the bed-clothes on the mouth. J. Börner investigated the influence of these circumstances by covering with the bed-clothes the mouth and a part of the nostrils of persons who were sound asleep. This was followed by a protraction of the act of breathing, a reddening of the face, efforts to throw off the clothes, etc. On being roused, the sleeper testified that he had experienced a nightmare, in which a horrid animal seemed to be weighing him down.‡ Irregularity of the heart's action is also a frequent cause of dreams. It is not improbable that the familiar dream-experience of flying arises from disturbances of the respiratory and circulatory movements.

* A very clear and full account of these organic sensations, or common sensations, has recently appeared from the pen of A. Horwicz in the *Vierteljahrsschrift für wissenschaftliche Philosophie*, iv. Jahrgang 3tes Heft.

† Schopenhauer uses this hypothesis in order to account for the apparent reality of dream-illusions. He thinks these internal sensations may be transformed by the "intuitive function" of the brain (by means of the "forms" of space, time, etc.) into quasi-realities, just as well as the subjective sensations of light, sound, etc., which arise in the organs of sense in the absence of external stimuli. (See *Versuch über das Geistessehen: Werke*, vol. v. p. 244, et seq.)

‡ *Das Alpdrücken*, pp. 8, 9, 27.

Again, the effects of indigestion, and more particularly stomachic derangement, on dreams are too well known to require illustration. It may be enough to allude to the famous dream which Hood traces to an excessive indulgence at supper. It is known that the varying condition of the organs of secretion influences our dream-fancy in a number of ways.

Finally, it is to be observed that an injury done to any part of the organism is apt to give rise to appropriate dream-images. In this way, very slight disturbances which would hardly affect waking consciousness may make themselves felt during sleep. Thus, for example, an incipient toothache has been known to suggest that the teeth are being extracted.*

It is worth observing that the interpretation of these various orders of sensations by the imagination of the dreamer takes very different forms according to the person's character, previous experience, ruling emotions, and so on. This is what is meant by saying that during sleep every man has a world of his own, whereas, when awake, he shares in the common world of perception.

Dream-Exaggeration.—It is to be noticed, further, that this interpretation of sensation during sleep is uniformly a process of exaggeration.† The exciting causes of the feelings of discomfort, for example, are always absurdly magnified. The reason of this seems to be that, owing to the condition of the mind during sleep, the nature of the sensation is not clearly recognizable. Even in the case of familiar external impressions, such as the sound of the striking of a clock, there appears to be wanting that simple process of reaction by which, in a waking condition of the attention, a sense-impression is instantly discriminated and classed. In sleep, as in the artificially induced hypnotic condition, the slighter differences of quality among sensations are not clearly recognized. The activity of the higher centers, which are concerned in the finer processes of discrimination and classification, being greatly reduced, the impression may be said to come before consciousness as something novel and unfamiliar. And just as we saw that in waking life novel sensations agitate the mind, and so lead to an exaggerated mode of interpretation, so here we see that what is unfamiliar disturbs the mind, rendering it incapable of calm attention and just interpretation.

This failure to recognize the real nature of an impression is seen most conspicuously in the case of the organic sensations. As I have remarked, these constitute for the most part, in waking life, an undiscriminated mass of obscure feeling, of which we are only conscious as the mental tone of the hour. And

* It is this fact which justifies writers in assigning a prognostic character to dreams.

† A part of the apparent exaggeration in our dream-experiences may be retrospective, and due to the effect of the impression of wonder which they leave behind them. (See Strümpell, *Die Natur und Entstehung der Träume.*)

in the few instances in which we do attend to them separately, whether through their exceptional intensity or in consequence of an extraordinary effort of discriminative attention, we can only be said to perceive them, that is, recognize their local origin, very vaguely. Hence, when asleep, these sensations get very oddly misinterpreted.

The localization of a bodily sensation in waking life means the combination of a tactual and a visual image with the sensation. Thus, my recognition of a twinge of toothache as coming from a certain tooth, involves representations of the active and passive sensations which touching and looking at the tooth would yield me. That is to say, the feeling instantly calls up a compound mental image exactly answering to a visual percept. This holds good in dream-interpretation too; the interpretation is effected by means of a visual image. But since the feeling is only very vaguely recognized, this visual image does not answer to the bodily part concerned. Instead of this, the fancy of the dreamer constructs some visual image which bears a vague resemblance to the proper one, and is generally, if not always, an exaggeration of this in point of extensive magnitude, etc. For example, a sensation arising from pressure on the bladder, being dimly connected with the presence of a fluid, calls up an image of a flood, and so on.

This mode of dream-interpretation has by some writers been erected into the typical mode, under the name of dream-symbolism. Thus Scherner, in his interesting though somewhat fanciful work, *Das Lebendes Traumes*, contends that the various regions of the body regularly disclose themselves to the dream-fancy under the symbol of a building or group of buildings; a pain in the head calling up, for example, the image of spiders on the ceiling, intestinal sensations exciting an image of a narrow alley, and so on. Such theories are clearly an exaggeration of the fact that the localization of our bodily sensations during sleep is necessarily imperfect.*

In many cases the image called up bears on its objective side no discoverable resemblance to that of the bodily region or the exciting cause of the sensation. Here the explanation must be looked for in the subjective side of the sensation and mental image, that is to say, in their emotional quality, as pleasurable or painful, distressing, quieting, etc. It is to be observed, indeed, that in natural sleep, as in the condition known as hypnotism, while differences of specific quality in the sense-impressions are lost, the broad difference of the pleasurable and the painful is never lost. It is, in fact, the subjective emotional side of the sensation that uniformly forces itself into consciousness. This being so, it follows that, speaking generally, the sensations of sleep, both external and internal, or organic, will be interpreted by what G. H. Lewes has called "an analogy of feel-

ing;" that is to say, by means of a mental image having some kindred emotional character or coloring.

Now, the analogy between the higher emotional and the bodily states is a very close one. A sensation of obstruction in breathing has its exact analogue in a state of mental embarrassment, a sensation of itching its counterpart in mental impatience, and so on. And since these emotional experiences are deeper and fuller than the sensations, the tendency to exaggerate the nature and causes of these last would naturally lead to an interpretation of them by help of these experiences. In addition to this, the predominance of visual imagery in sleep would aid this transformation of a bodily sensation into an emotional experience, since visual perceptions have, as their accompaniments of pleasure and pain, not sensations, but emotions.*

Since in this vague interpretation of bodily sensation the actual impression is obscure, and not taken up as an integral part into the percept, it is evident that we cannot, strictly speaking, call the process an imitation of an act of perception, that is to say, an illusion. And since, moreover, the visual image by which the sensation is thus displaced appears as a present object, it would, of course, be allowable to speak of this as an hallucination. This substitution of a more or less analogous visual image for that appropriate to the sensation forms, indeed, a transition from dream-illusion, properly so called, to dream-hallucination.

Dream Hallucinations.—On the physical side, these hallucinations answer to cerebral excitations which are central or automatic, not depending on movements transmitted from the periphery of the nervous system. Of these stimulations some appear to be direct, and due to unknown influences exerted by the state of nutrition of the cerebral elements, or the action of the contents of the blood-vessels on these elements.

Effects of Direct Central Stimulation.—That such action does prompt a large number of dream-images may be regarded as fairly certain. First of all, it seems impossible to account for all the images of dream-fancy as secondary phenomena connected by links of association with the foregoing classes of sensation. However fine and invisible many of the threads which hold together our ideas may be, they will hardly explain the profusion and picturesque variety of dream-imagery. Secondly, we are able in certain cases to infer with a fair amount of certainty that a dream-image is due to such central stimulation. The common occurrence that we dream of the more stirring events, the

* I was on one occasion able to observe this process going on in the transition from waking to sleeping. I partly fell asleep when suffering from toothache. Instantly the successive throbs of pain transformed themselves into a sequence of visible movements, which I can only vaguely describe as the forward strides of some menacing adversary.

* Cf. Radestock, *op. cit.*, pp. 131, 132

anxieties and enjoyments of the preceding day, appears to show that when the cerebral elements are predisposed to a certain kind of activity, as they are after having been engaged for some time in this particular work, they are liable to be excited by some stimulus brought directly to bear on them during sleep. And if this is so, it is not improbable that many of the apparently forgotten images of persons and places which return with such vividness in dreams are excited by a mode of stimulation which is for the greater part confined to sleep. I say "for the greater part," because even in our indolent, listless moments of waking existence such seemingly forgotten ideas sometimes return as though by a spontaneous movement of their own and by no discoverable play of association.

It may be well to add that this immediate revival of impressions previously received by the brain includes not only the actual perceptions of waking life, but also the ideas derived from others, the ideal fancies supplied by works of fiction, and even the images which our unaided waking fancy is wont to shape for itself. Our daily conjectures as to the future, the communications to us by others of their thoughts, hopes, and fears,—these give rise to numberless vague fugitive images, any one of which may become distinctly revived in sleep.* This throws light on the curious fact that we often dream of experiences and events quite unlike those of our individual life. Thus, for example, the common construction by the dream-fancy of the experience of flight in mid-air, and the creation of those weird forms which the terror of a nightmare is wont to bring in its train, seem to point to the past action of waking fancy. To imagine one's self flying when looking at a bird is probably a common action with all persons, at least in their earlier years, and images of preternaturally horrible beings are apt to be supplied to most of us some time during life by nurses or by books.

Indirect Central Stimulation.—Besides these direct central stimulations, there are others which, in contradistinction, may be called indirect, depending on some previous excitation. These are, no doubt, the conditions of a very large number of our dream-images. There must, of course, be some primary cerebral excitation, whether that of a present peripheral stimulation, or that which has been termed central and spontaneous; but when once this first link of the imaginative chain is supplied, other links may be added in large numbers through the operation of the forces of association. One may, indeed,

* Even the "unconscious impressions" of waking hours, that is to say, those impressions which are so fugitive as to leave no psychical trace behind, may thus rise into the clear light of consciousness during sleep. Maury relates a curious dream of his own, in which there appeared a figure that seemed quite strange to him, though he afterward found that he must have been in the habit of meeting the original in a street through which he was accustomed to walk (*loc. cit.*, p. 124).

safely say that the large proportion of the contents of every dream arise in this way.

The very simplest type of dream excited by a present sensation contains these elements. To take an example, I once dreamt, as a consequence of the loud barking of a dog, that a dog approached me when lying down, and began to lick my face. Here the play of the associative forces was apparent: a mere sensation of sound called up the appropriate visual image, this again the representation of a characteristic action, and so on. So it is with the dreams whose first impulse is some central or spontaneous excitation. A momentary sight of a face or even the mention of a name during the preceding day may give the start to dream-activity; but all subsequent members of the series of images owe their revival to a tension, so to speak, in the fine threads which bind together, in so complicated a way, our impressions and ideas.

Among the psychic accompaniments of these central excitations visual images, as already hinted, fill the most conspicuous place. Even auditory images, though by no means absent, are much less numerous than visual. Indeed, when there are the conditions for the former, it sometimes happens that the auditory effect transforms itself into a visual effect. An illustration of this occurred in my own experience. Trying to fall asleep by means of the well-known device of counting, I suddenly found myself losing my hold on the faint auditory effects, my imagination transforming them into a visual spectacle, under the form of a path of light stretching away from me, in which the numbers appeared under the grotesque form of visible objects, tumbling along in glorious confusion.

Next to these visual phantasms, certain motor hallucinations seem to be most prominent in dreams. By a motor hallucination, I mean the illusion that we are actually moving when there is no peripheral excitation of the motor organ. Just as the centers concerned in passive sensation are susceptible of central stimulation, so are the centers concerned in muscular sensation. A mere impulse in the centers of motor innervation (if we assume these to be the central seat of the muscular feelings) may suffice to give rise to a complete representation of a fully executed movement. And thus in our sleep we seem to walk, ride, float, or fly.

The most common form of motor hallucination is probably the vocal. In the social encounters which make up so much of our sleep-experience, we are wont to be very talkative. Now, perhaps, we find ourselves zealously advocating some cause, now very fierce in denunciation, now very amusing in witty repartee, and so on. This imagination of ourselves as speaking, as distinguished from that of hearing others talking, must, it is clear, involve the excitation of the structures engaged in the production of the muscular feelings which accompany vocal action, as much as, if not more than, the auditory centers. And the frequency of this kind of

dream-experience may be explained, like that of visual imagery, by the habits of waking life. The speech impulse is one of the most deeply rooted of all our impulses, and one which has been most frequently exercised in waking life.

Combination of Dream-Elements.—It is commonly said that dreams are a grotesque dissolution of all order, a very chaos and whirl of images without any discoverable connection. On the other hand, a few writers claim for the mind in sleep a power of arranging and grouping its incongruous elements in definite and even life-like pictures. Each of these views is correct within certain limits; that is to say, there are dreams in which the strangest disorder seems to prevail, and others in which one detects the action of a central control. Yet, speaking generally, sequences of dream-images will be found to be determined by certain circumstances and laws, and so far not to be haphazard or wholly chaotic. We have now to inquire into the laws of these successions; and, first of all, we may ask how far the known laws of association, together with the peculiar conditions of the sleeping state, are able to account for the various modes of dream-combination. We have already regarded mental association as furnishing a large additional store of dream-imagery; we have now to consider it as explaining the sequences and concatenations of our dream-elements.

Incoherence of Dreams.—First of all, then, let us look at the chaotic and apparently lawless side of dreaming, and see whether any clue is discoverable to the center of this labyrinth. In the case of all the less elaborately ordered dreams, in which sights and sounds appear to succeed one another in the wildest dance (which class of dreams probably belongs to the deeper stages of sleep), the mind may with certainty be regarded as purely passive, and the mode of sequence may be referred to the action of association complicated by the ever-recurring introduction of new initial impulses, both peripheral and central. These are the dreams in which we are conscious of being perfectly passive, either as spectators of a strange pageant, or as borne away by some apparently extraneous force through a series of the most diverse experiences. The flux of images in these dreams is very much the same as that in certain waking conditions, in which we relax attention, both external and internal, and yield ourselves wholly to the spontaneous play of memory and fancy.

It is plain at a glance that the simultaneous concurrence of wholly disconnected initial impulses will serve to impress a measure of disconnectedness on our dream-images. From widely remote parts of the organism there come impressions which excite each its peculiar visual or other image according as its local origin or its emotional tone is the more distinctly present to consciousness. Now it is a subjective ocular sensation suggesting a bouquet of lovely flowers, and close

on its heels comes an impression from the organs of digestion suggesting all manner of obstacles; and so our dream-fancy plunges from a vision of flowers to one of dreadful demons.

Let us now look at the way in which the laws of association working on the incongruous elements thus cast up into our dream-consciousness, will serve to give a yet greater appearance of disorder and confusion to our dream-combinations. According to these laws, any idea may, under certain circumstances, call up another, if the corresponding impressions have only once occurred together, or if the ideas have any degree of resemblance, or, finally, if only they stand in marked contrast with one another. Any accidental coincidence of events, such as meeting a person at a particular foreign resort, and any insignificant resemblance between objects, sounds, etc., may thus supply a path, so to speak, from fact to dream-fancy.

In our waking states these innumerable paths of association are practically closed by the supreme energy of the coherent groups of impressions furnished us from the world without through our organs of sense, and also by the volitional control of internal thought in obedience to the pressure of practical needs and desires. In dream-life both of these influences are withdrawn, so that delicate threads of association, which have no chance of exerting their pull, so to speak, in our waking states, now make known their hidden force. Little wonder, then, that the filaments which bind together these dream-successions should escape detection, since even in our waking thought we so often fail to see the connection which makes us pass in recollection from a name to a visible scene or perhaps to an emotional vibration.

It is worth noting that the origin of an association is often to be looked for in one of those momentary half-conscious acts of waking imagination to which reference has already been made. A friend, for example, has been speaking to us of some common acquaintance, remarking on his poor health. The language calls up, vaguely, a visual representation of the person sinking in health and dying. An association will thus be formed between this person and the idea of death. A night or two after, the image of this person somehow recurs to our dream-fancy, and we straightway dream that we are looking at his corpse, watching his funeral, and so on. The links of the chain which holds together these dream-images were really forged, in part, in our waking hours, though the process was so rapid as to escape our attention. It may be added, that in many cases where a juxtaposition of dream-images seems to have no basis in waking life, careful reflection will occasionally bring to light some actual conjunction of impressions so momentary as to have faded from our recollection.

We must remember, further, how great an apparent disorder will invade our imagina-

tive dream-life when the binding force of resemblance has unchecked play. In waking thought we have to connect things according to their essential resemblances, classifying objects and events for purposes of knowledge or action according to their widest or their most important points of similarity. In sleep, on the contrary, the slightest touch of resemblance may engage the mind and affect the direction of fancy. In a sense we may be said, when dreaming, to discover mental affinities between impressions and feelings, including those subtle links of emotional analogy of which I have already spoken. This effect is well illustrated in a dream recorded by M. Maury, in which he passed from one set of images to another through some similarity of names, as that between *corps* and *cor*. Such a movement of fancy would, of course, be prevented in full waking consciousness by a predominant attention to the meaning of the sounds.

It will be possible, I think, after a habit of analyzing one's dreams in the light of preceding experience has been formed, to discover in a good proportion of cases some hidden force of association which draws together the seemingly fortuitous concourse of our dream-atoms. That we should expect to do so in every case is unreasonable, since, owing to the numberless fine ramifications which belong to our familiar images, many of the paths of association followed by our dream-fancy cannot be afterward retraced.

To illustrate the odd way in which our images get tumbled together through the action of occult association forces, I will record a dream of my own. I fancied I was at the house of a distinguished literary acquaintance, at her usual reception hour. I expected the friends I was in the habit of meeting there. Instead of this, I saw a number of commonly dressed people having tea. My hostess came up and apologized for having asked me into this room. It was, she said, a tea-party which she prepared for poor people at sixpence a head. After puzzling over this dream, I came to the conclusion that the missing link was a verbal one. A lady who is a connection of my friend, and bears the same name, assists her sister in a large kind of benevolent scheme. I may add that I had not, so far as I could recollect, had occasion very recently to think of this benevolent friend, but I had been thinking of my literary friend in connection with her anticipated return to town.

In thus seeking to trace, amid the superficial chaos of dream-fancy, its hidden connections, I make no pretense to explain why in any given case these particular paths of association should be followed, and more particularly why a slender thread of association should exert a pull where a stronger cord fails to do so. To account for this, it would be necessary to call in the physiological hypothesis that among the nervous elements connected with a particular element, *a*, already excited, some, as *m* and *n*, are at the

moment, owing to the state of their nutrition or their surrounding influences, more powerfully predisposed to activity than other elements, as *b* and *c*.

The subject of association naturally conducts us to the second great problem in the theory of dreams—the explanation of the order in which the various images group themselves in all our more elaborate dreams.

Coherence of Dreams.—A fully developed dream is a complex of many distinct illusory sense-presentations: in this respect it differs from the illusions of normal waking life, which are for the most part single and isolated. And this complex or quasi-presentations appears somehow or other to fall together into one whole scene or series of events, which, though it may be very incongruous and absurdly impossible from a waking point of view, nevertheless makes a single object for the dreamer's internal vision, and has a certain degree of artistic unity. This plastic force, which selects and binds together our unconnected dream-images, has frequently been referred to as a mysterious spiritual faculty, under the name of "creative fancy." Thus Cudworth remarks, in his *Treatise concerning Eternal and Immutable Morality*: "That dreams are many times begotten by the phantastical power of the soul itself. . . is evident from the orderly connection and coherence of imaginations which many times are continued in a long chain or series." One may find a good deal of mystical writing on the nature and activity of this faculty, especially in German literature. The explanation of this element of organic unity in dreams is, it may be safely said, the crux in the science of dreams. That the laws of psychology help us to understand the sequences of dream-images, we have seen. What we have now to ask is whether these laws throw any light on the orderly grouping of the elements so brought up in consciousness in the form of a connected experience.

It is to be remarked at the outset that a singular kind of unity is sometimes given to our dream-combinations by a total or partial coalescence of different images. The conditions of such coalescence have been referred to already.* Simultaneous impressions or images will always tend to coalesce with a force which varies directly as the degree of their similarity. Sometimes this coalescence is instantaneous and not made known to consciousness. Thus, Radestock suggests that if the mind of the sleeper is simultaneously invaded by an unpleasant sensation arising out of some disturbance of the functions of the skin, and a subjective visual sensation, the resulting mental image may be a combination of the two, under the form of a caterpillar creeping over the bodily surface. And the coalescence may be prepared by sub-conscious operations of waking imagination. Thus, for example, I once spoke about the cheapness of hares to a mem-

* See p. 16.

ber of my family, who somewhat grimly suggested that they were London cats. I did not dwell on the idea, but the following night I dreamt that I saw a big hybrid creature, half hare, half cat, sniffing about a cottage. As it stood on its hind legs and took a piece of food from a window-ledge, I became sure that it was a cat. Here it is plain that the cynical observation of my relative had, at the moment, partially excited an image of this feline hare. In some dreams, again, we may become aware of the process of coalescence, as when persons who at one moment were seen to be distinct appear to our dream-fancy to run together in some third person.

A very similar kind of unification takes place between sequent images under the form of transformation. When two images follow one another closely, and have anything in common, they readily assume the form of a transmutation. There is a sort of overlapping of the mental images, and so an appearance of continuity produced in some respects analogous to that which arises in the wheel-of-life (thaumatrope) class of sense-illusions. This would seem to account for the odd transformations of personality which not unfrequently occur in dreams, in which a person appears, by a kind of metempsychosis, to transfer his physical ego to another, and in which the dreamer's own bodily phantom plays similar freaks. And the same principle probably explains those dissolving-view effects which are so familiar an accompaniment of dream-scenery.*

But passing from this exceptional kind of unity in dreams, let us inquire how the heterogeneous elements of our dream-fancy become ordered and arranged when they preserve their separate existence. If we look closely at the structure of our more finished dreams, we find that the appearance of harmony, connectedness, or order, may be given in one of two ways. There may, first of all, be a subjective harmony, the various images being held together by an emotional thread. Or there may, secondly, be an objective harmony, the parts of the dream, though answering to no particular experiences of waking life, bearing a certain resemblance to our habitual modes of experience. Let us inquire into the way in which each kind of order is brought about.

Lyrical Element in Dreams.—The only unity that belongs to many of our dreams is a subjective emotional unity. This is the basis of harmony in lyrical poetry, where the succession of images turns mainly on their emotional coloring. Thus, the images that float before the mind of the Poet Laureate, in his *In Memoriam*, clearly have their link of connection in their common emotional tone, rather than in any logical continuity. Dreaming has been likened to poetic composition, and certainly many of our dreams are built upon a groundwork of lyrical feel-

ing. They might be marked off, perhaps, as our lyrical dreams.

The way in which this emotional force acts in these cases has already been hinted at. We have seen that the analogy of feeling is a common link between dream-images. Now, if any shade of feeling becomes fixed and dominant in the mind, it will tend to control all the images of the time, allowing certain congruous ones to enter, and excluding others.* If, for example, a feeling of distress occupies the mind, distressing images will have the advantage in the struggle for existence which goes on in the world of mind as well as in that of matter. We may say that attention, which is here wholly a passive process, is controlled by the emotion of the time, and bent in the direction of congruent or harmonious images.

Now a ground-tone of feeling of a certain complexion, answering to the sum of sensations arising in connection with the different organic processes of the time, is a very frequent foundation of our dream-structure. So frequent is it, indeed, that one might almost say there is no dream in which it is not one great determining factor. The analysis of a very large number of dreams has convinced me that traces of this influence are discoverable in a great majority.

I will give a simple illustration of this lyrical type of dream. A little girl of about four years and three-quarters went with her parents to Switzerland. On their way she was taken to the cathedral at Strasburg, and saw the celebrated clock strike, and the figures of the Apostles come out, etc. In Switzerland she stayed at Gimmelwald, near Mürren, opposite a fine mass of snowy mountains. One morning she told her father that she had had "such a lovely dream." She fancied she was on the snow-peaks with her nurse, and walked on to the sky. There came out of the sky "such beautiful things," just like the figures of the clock. This vision of celestial things was clearly due to the fact that both the clock and the snow-peaks touching the blue sky had powerfully excited her imagination, filling her with much the same kind of emotion, namely, wonder, admiration, and longing to reach an inaccessible height.

Our feelings commonly have a gradual rise and fall, and the organic sensations which so often constitute the emotional basis of our lyrical dreams generally have stages of increasing intensity. Moreover, such a persistent ground-feeling becomes re-enforced by the images which it sustains in consciousness. Hence a certain *crescendo* character in our emotional dreams, or a gradual rise to some culminating point or climax.

This phase of dream can be illustrated from the experience of the same little girl. When just five years old, she was staying at Hampstead, near a church which struck the

* See Maury, *loc. cit.*, p. 146.

* See what was said respecting the influence of a dominant emotional agitation on the interpretation of actual sense impressions.

hours somewhat loudly. One morning she related the following dream to her father (I use her own language). The biggest bells in the world were ringing; when this was over the earth and houses began to tumble to pieces; all the seas, rivers, and ponds flowed together, and covered all the land with black water, as deep as in the sea where the ships sail; people were drowned; she herself flew above the water, rising and falling, fearing to fall in; she then saw her mamma drowned, and at last flew home to tell her papa. The gradual increase of alarm and distress expressed in this dream, having its probable cause in the cumulative effect of the disturbing sound of the church bells, must be patent to all.

The following rather comical dream illustrates quite as clearly the growth of a feeling of irritation and vexation, probably connected with the development of some slightly decomposing organic sensation. I dreamt I was unexpectedly called on to lecture to a class of young women, on Herder. I began hesitatingly, with some vague generalities about the Augustan age of German literature, referring to the three well-known names of Lessing, Schiller, and Goethe. Immediately my sister, who suddenly appeared in the class, took me up, and said she thought there was a fourth distinguished name belonging to this period. I was annoyed at the interruption, but said, with a feeling of triumph, "I suppose you mean Wieland?" and then appealed to the class whether there were not twenty persons who knew the names I had mentioned to one who knew Wieland's name. Then the class became generally disorderly. My feeling of embarrassment gained in depth. Finally, as a climax, several quite young girls, about ten years and less, came and joined the class. The dream broke off abruptly as I was in the act of taking these children to the wife of an old college tutor, to protest against their admission.

It is worth noting, perhaps, that in this evolution of feeling in dreaming the quality of the emotion may vary within certain limits. One shade of feeling may be followed by another and kindred shade, so that the whole dream still preserves a degree, though a less obvious degree, of emotional unity. Thus, for example, a lady friend of mine once dreamt that she was in church, listening to a well-known novelist of the more earnest sort, preaching. A wounded soldier was brought in to be shot, because he was mortally wounded, and had distinguished himself by his bravery. He was then shot, but not killed, and rolling over in agony, exclaimed, "How long!" The development of an extreme emotion of horror out of the vague feeling of awe which is associated with a church, gives a curious interest to this dream.

Verisimilitude in Dreams.—I must not dwell longer on this emotional basis of dreams, but pass to the consideration of the second and objective kind of unity which

characterizes many of our more elaborate dream-performances. In spite of all that is fitful and grotesque in dream-combination, it still preserves a distant resemblance to our actual experience. Though no dream reproduces a particular incident or chain of incidents in this experience, though the dream-fancy invariably transforms the particular objects, relations, and events of waking life, it still makes the order of our daily experience its prototype. It fashions its imaginary world on the model of the real. Thus, objects group themselves in space, and act on one another conformably to these perceived space-relations; events succeed one another in time, and are often seen to be connected; men act from more or less intelligible motives, and so on. In this way, though the dream-fancy sets at naught the particular relations of our experience, it respects the general and constant relations. How are we to account for this?

It is said by certain philosophers that this superposition of the relations of space, time, causation, etc., on the products of our dream-fancy is due to the fact that all experience arises by a synthesis of mental forms with the chaotic master of sense-impressions. These philosophers allow, however, that all particular connections are determined by experience. Accordingly, what we have to do here is to inquire how far this scientific method of explaining mental connections by facts of experience will carry us. In other words, we have to ask what light can be thrown on these tendencies of dream-imagination by ascertained psychological laws, and more particularly by what are known as the laws of association.

These laws tell us that of two mental phenomena which occur together, each will tend to recall the other whenever it happens to be revived. On the physiological side, this means that any two parts of the nervous structures which have acted together become in some way connected, so that when one part begins to work the other will tend to work also. But it is highly probable that a particular structure acts in a great many different ways. Thus it may be stimulated by unlike modes of stimuli, or it may enter into very various connections with other structures. What will follow from this? One consequence would appear to be that there will be developed an organic connection between the two structures, of such a kind that whenever one is excited the other will be disposed to act somehow and anyhow, even when there is nothing in the present mode of activity of the first structure to determine the second to act in some one definite way, in other words, when this mode of activity is, roughly speaking, novel.

Let me illustrate this effect in one of the simplest cases, that of the visual organ. If, when walking out on a dark night, a few points in my retina are suddenly stimulated by rays of light, and I recognize some luminous object in a corresponding direction, I am

prepared to see something above and below, to the right and to the left of this object. Why is this? There may from the first have been a kind of innate understanding among contiguous optic fibers, predisposing them to such concerted action. But however this be, this disposition would seem to have been largely promoted by the fact that, throughout my experience the stimulation of any retinal point has been connected with that of adjoining points, either simultaneously by some second object, or successively by the same object as the eye moves over it, or as the object itself moves across the field of vision.

When, therefore, in sleep any part of the optic centers is excited in a particular way, and the images thus arising have their corresponding loci in space assigned to them, there will be a disposition to refer any other visual images which happen at the moment to arise in consciousness to adjacent parts of space. The character of these other images will be determined by other special conditions of the moment; their locality or position in space will be determined by this organic connection. We may, perhaps, call these tendencies to concerted action of some kind general associative dispositions.

Just as there are such dispositions to united action among various parts of one organ of sense, so there may be among different organs, which are either connected originally in the infant organism, or have communications opened up by frequent co-excitation of the two. Such links there certainly are between the organs of taste and smell, and between the ear and the muscular system in general, and more particularly the vocal organ.* A new odor often sets us asking how the object would taste, and a series of sounds commonly disposes us to movement of some kind or another. How far there may be finer threads of connection between other organs, such as the eye and the ear, which do not betray themselves amid the stronger forces of waking mental life, one cannot say. Whatever their number, it is plain that they will exert their influence within the comparatively narrow limits of dream-life, serving to impress a certain character on the images which happen to be called up by special circumstances, and giving to the combination a slight measure of congruity. Thus, if I were dreaming that I heard some lively music, and at the same time an image of a friend was anyhow excited, my dream-fancy might not improbably represent this person as performing a sequence of rhythmic movements, such as those of riding, dancing, etc.

A narrower field for these general associative dispositions may be found in the tendency, on the reception of an impression of a

* It is proved experimentally that the ear has a much closer organic connection with the vocal organ than the eye has. Donders found that the period required for responding vocally to a sound signal is less than that required for responding in the same way to a light signal.

given character, to look for a certain kind of second impression; though the exact nature of this is unknown. Thus, for example, the form and color of a new flower suggests a scent, and the perception of a human form is accompanied by a vague representation of vocal utterances. These general tendencies of association appear to me to be most potent influences in our dream-life. The many strange human forms which float before our dream-fancy are apt to talk, move, and behave like men and women in general, however little they resemble their actual prototypes, and however little individual consistency of character is preserved by each of them. Special conditions determine what they shall say or do; the general associative disposition accounts for their saying or doing something.

We thus seem to find in the purely passive processes of association some ground for that degree of natural coherence and rational order which our more mature dreams commonly possess. These processes go far to explain, too, that odd mixture of rationality with improbability, of natural order and incongruity, which characterizes our dream-combinations.

Rational Construction in Dreams.—Nevertheless, I quite agree with Herr Volkelt that association, even in the most extended meaning, cannot explain all in the shaping of our dream-pictures. The "phantastical power" which Cudworth talks about clearly includes something besides. It is an erroneous supposition that when we are dreaming there is a complete suspension of the voluntary powers, and consequently an absence of all direction of the intellectual processes. This supposition, which has been maintained by numerous writers, from Dugald Stewart downward, seems to be based on the fact that we frequently find ourselves in dreams striving in vain to move the whole body or a limb. But this only shows, as M. Maury remarks in the work already referred to, that our volitions are frustrated through the inertia of our bodily organs, not that these volitions do not take place. In point of fact, the dreamer, not to speak of the somnambulist, is often conscious of voluntarily going through a series of actions. This exercise of volition is shown unmistakably in the well-known instances of extraordinary intellectual achievements in dreams, as Condillac's composition of a part of his *Cours d'Etudes*. No one would maintain that a result of this kind was possible in the total absence of intellectual action carefully directed by the will. And something of this same control shows itself in all our more fully developed dreams.

One manifestation of this voluntary activity in sleep is to be found in those efforts of attention which not unfrequently occur. I have remarked that, speaking roughly and in relation to the waking condition, the state of sleep is marked by a subjection of the powers of attention to the force of the mental images

present to consciousness. Yet something resembling an exercise of voluntary attention sometimes happens in sleep. The intellectual feats just spoken of, unless, indeed, they are referred to some mysterious unconscious mental operations, clearly involve a measure of volitional guidance. All who dream frequently are occasionally aware on awaking of having greatly exercised their attention on the images presented to them during sleep. I myself am often able to recall an effort to see beautiful objects, which threatened to disappear from my field of vision, or to catch faint receding tones of preternatural sweetness; and some dreamers allege that they are able to retain a recollection of the feeling of strain connected with such exercise of attention in sleep.

The main function of this voluntary attention in dream-life is seen in the selection of those images which are to pass the threshold of clear consciousness. I have already spoken of a selective action brought about by the ruling emotion. In this case, the attention is held captive by the particular feeling of the moment. Also a selective process goes on in the case of the action of those associative dispositions just referred to. But in each case of these cases the action of selective attention is comparatively involuntary, passive, and even unconscious, not having anything of the character of a conscious striving to compass some end. Besides this comparatively passive play of selective attention, there is an active play, in which there is a conscious wish to gain an end; in other words, the operation of a definite motive. This motive may be described as an intellectual impulse to connect and harmonize what is present to the mind. The voluntary kind of selection includes and transcends each of the involuntary kinds. It has as its result an imitation of that order which is brought about by what I have called the associative dispositions, only it consciously aims at this result. And it is a process controlled by a feeling, namely, the intellectual sentiment of consistency, which is not a mode of emotional excitement entralling the will, but a calm motive, guiding the activities of attention. It thus bears somewhat the same relation to the emotional selection already spoken of, as dramatic creation bears to lyrical composition.

This process of striving to seize some connecting link, or thread of order, is illustrated whenever, in waking life, we are suddenly brought face to face with an unfamiliar scene. When taken into a factory, we strive to arrange the bewildering chaos of visual impressions under some scheme, by help of which we are said to understand the scene. So, if on entering a room we are plunged in *mediâs res* of a lively conversation, we strive to find a clue to the discussion. Whenever the meaning of a scene is not at once clear, and especially whenever there is an appearance of confusion in it, we are conscious of a painful feeling of perplexity, which acts

as a strong motive to ever-renewed attention.*

In touching on this intellectual impulse to connect the disconnected, we are, it is plain, approaching the question of the very foundations of our intellectual structure. That there is this impulse firmly rooted in the mature mind nobody can doubt; and that it manifests itself in early life in the child's recurring "Why?" is equally clear. But how we are to account for it, whether it is to be viewed as a mere result of the play of associated fragments of experience, or as something involved in the very process of the association of ideas itself, is a question into which I cannot here enter.

What I am here concerned to show is that the search for consistency and connection in the manifold impressions of the moment is a deeply rooted habit of the mind, and one which is retained in a measure during sleep. When, in this state, our minds are invaded by a motley crowd of unrelated images, there results a disagreeable sense of confusion; and this feeling acts as a motive to the attention to sift out those products of the dream-fancy which may be made to cohere. When once the foundations of a dream-action are laid, new images must to some extent fit in with this; and here there is room for the exercise of a distinct impulse to order the chaotic elements of dream-fancy in certain forms. The perception of any possible relation between one of the crowd of new images ever surging above the level of obscure consciousness, and the old group at once serves to detain it. The concentration of attention on it, in obedience to this impulse to seek for an intelligible order, at once intensifies it and fixes it, incorporating it into the series of dream-pictures.

Here is a dream which appears to illustrate this impulse to seek an intelligible order in the confused and disorderly. After being occupied with correcting the proofs of my volume on *Pessimism*, I dreamt that my book was handed to me by my publisher, fully illustrated with colored pictures. The frontispiece represented the fantastic figure of a man gesticulating in front of a ship, from which he appeared to have just stepped. My publisher told me it was meant for Hamlet, and I immediately reflected that this character had been selected as a concrete example of the pessimistic tendency. I may add that, on awaking, I was distinctly aware of having felt puzzled when dreaming, and of having striven to read a meaning into the dream.

The *rationale* of this dream seems to me to be somewhat as follows. The image of the completed volume represented, of course, a recurring anticipatory image of waking life. The colored plates were due probably to subjective optical sensations simultaneously

* On the nature of this impulse, as illustrated in waking and in sleep, see the article by Delboëuf, "Le Sommeil et les Rêves," in the *Revue Philosophique*, June, 1880, p. 636.

excited, which were made to fit in (with or without an effort of voluntary attention) with the image of the book under the form of illustrations. But this stage of coherency did not satisfy the mind, which, still partly confused by the incongruity of colored plates in a philosophic work, looked for a closer connection. The image of Hamlet was naturally suggested in connection with pessimism. The effort to discover a meaning in the pictures led to the fusion of this image with one of the subjective spectra, and in this way the idea of a Hamlet frontispiece probably arose.

The whole process of dream-construction is clearly illustrated in a curious dream recorded by Professor Wundt.* Before the house is a funeral procession: it is the burial of a friend, who has in reality been dead for some time past. The wife of the deceased bids him and an acquaintance who happens to be with him go to the other side of the street and join the procession. After she has gone away, his companion remarks to him, "She only said that because the cholera rages over yonder, and she wants to keep this side of the street to herself." Then comes an attempt to flee from the region of the cholera. Returning to his house, he finds the procession gone, but the street strewn with rich nosegays; and he further observes crowds of men who seem to be funeral attendants, and who, like himself, are hastening to join the procession. These are, oddly enough, dressed in red. When hurrying on, it occurs to him that he has forgotten to take a wreath for the coffin. Then he wakes up with beating of the heart.

The sources of this dream are, according to Wundt, as follows. First of all, he had, on the previous day, met the funeral procession of an acquaintance. Again, he had read of cholera breaking out in a certain town. Once more, he had talked about the particular lady with this friend, who had narrated facts which clearly proved her selfishness. The hastening to flee from the infected neighborhood and to overtake the procession was prompted by the sensation of heart-beating. Finally, the crowd of red bier-followers, and the profusion of nosegays, owed their origin to subjective visual sensations, the "light-chaos" which often appears in the dark.

Let us now see for a moment how these various elements may have become fused into a connected chain of events. First of all, it is clear that this dream is built up on a foundation of a gloomy tone of feeling, arising, as it would seem, from an irregularity of the heart's action. Secondly, it owes its special structure and its air of a connected sequence of events, to those tendencies, passive and active, to order the chaotic of which I have been speaking. Let us try to trace this out in detail.

To begin with, we may suppose that the image of the procession occupies the dreamer's mind. From quite another source the

image of the lady enters consciousness, bringing with it that of her deceased husband and of the friend who has recently been talking about her. These new elements adapt themselves to the scene, partly by the passive mechanism of associative dispositions, and partly, perhaps, by the activity of voluntary selection. Thus, the idea of the lady's husband would naturally recall the fact of his death, and this would fall in with the pre-existing scene under the form of the idea that he is the person who is now being buried. The next step is very interesting. The image of the lady is associated with the idea of selfish motives. This would tend to suggest a variety of actions, but the one which becomes a factor of the dream is that which is specially adapted to the pre-existing representations, namely, of the procession on the further side of the street, and the cholera (which last, like the image of the funeral, is, we may suppose, due to an independent central excitation). That is to say, the request of the lady, and its interpretation, are a *resultant* of a number of adaptive or assimilative actions, under the sway of a strong desire to connect the disconnected, and a lively activity of attention. Once more, the feeling of oppression of the heart, and the subjective stimulation of the optic nerve, might suggest numberless images besides those of anxious flight and of red-clad men and nosegays; they suggest these, and not others, in this particular case, because of the co-operation of the impulse of consistency, which, setting out with the pre-existing mental images, selects from among many tendencies of reproduction those which happen to chime in with the scene.

The Nature of Dream-Intelligence.—It must not be supposed that this process of welding together the chaotic materials of our dreams is ever carried out with anything like the clear rational purpose of which we are conscious when seeking, in waking life, to comprehend some bewildering spectacle. At best it is a vague longing, and this longing, it may be added, is soon satisfied. There is, indeed, something almost pathetic in the facility with which the dreamer's mind can be pacified with the least appearance of a connection. Just as a child's importunate "Why?" is often silenced by a ridiculous caricature of an explanation, so the dreamer's intelligence is freed from its distress by the least semblance of a uniting order.

It thus remains true with respect even to our most coherent dreams, that there is a complete suspension, or at least a considerable retardation, of the highest operations of judgment and thought; also a great enfeeblement, to say the least of it, of those sentiments such as the feeling of consistency and the sense of the absurd which are so intimately connected with these higher intellectual operations.

In order to illustrate how oddly our seemingly rational dreams caricature the operations of waking thought, I may, perhaps, be

* *Physiologische Psychologie*. p. 660.

allowed to record two of my own dreams, of which I took careful note at the time.

On the first occasion I went "in my dream" to the "Stores" in August, and found the place empty. A shopman brought me some large fowls. I asked their price, and he answered, "Tenpence a pound." I then asked their weight, so as to get an idea of their total cost, and he replied, "Forty pounds." Not in the least surprised, I proceeded to calculate their cost: $40 \times 10 = 400 + 12 = 334$. But, oddly enough, I took this quotient as pence, just as though I had not already divided by 12, and so made the cost of a fowl to be 2s. 9d., which seemed to me a fair enough price.

In my second dream I was at Cambridge, among a lot of undergraduates. I saw a coach drive up with six horses. Three undergraduates got out of the coach. I asked them why they had so many horses, and they said, "Because of the luggage." I then said, "The luggage is much more than the undergraduates. Can you tell me how to express this in mathematical symbols? This is the way: if x is the weight of an undergraduate, then $x + x^2$ represents the weight of an undergraduate and his luggage together." I noticed that this sally was received with evident enjoyment.*

We may say, then, that the structure of our dreams, equally with the fact of their completely illusory character, points to the conclusion that during sleep, just as in the moments of illusion in waking life, there is a deterioration of our intellectual life. The highest intellectual activities answering to the least stable nervous connections are impeded, and what of intellect remains corresponds to the most deeply organized connections.

In this way, our dream-life touches that childish condition of the intelligence which marks the decadence of old age and the encroachments of mental disease. The parallelism between dreams and insanity has been pointed out by most writers on the subject. Kant observed that the madman is a dreamer awake, and more recently Wundt has remarked that, when asleep, we "can experience nearly all the phenomena which meet us in lunatic asylums." The grotesqueness of the combinations, the lack of all judgment as to consistency, fitness, and probability,

* I may, perhaps, observe, after giving two dreams which have to do with mathematical operations, that, though I was very fond of them in my college days, I have long ceased to occupy myself with these processes. I would add, by way of redeeming my dream-intelligence from a deserved charge of silliness, that I once performed a respectable intellectual feat when asleep. I put together the riddle, "What might a wooden ship say when her side was stove in? Tremendous!" (Tremend-us). I was aware of having tried to improve on the form of this pun. I am happy to say I am not given to punning during waking life, though I had a fit of it once. It strikes me that punning, consisting as it does essentially of overlooking sense and attending to sound, is just such a debased kind of intellectual activity as one might look for in sleep.

are common characteristics of the short night-dream of the healthy and the long day-dream of the insane.*

But one great difference marks off the two domains. When dreaming, we are still sane, and shall soon prove our sanity. After all, the dream of the sleeper is corrected, if not so rapidly as the illusion of the healthy waker. As soon as the familiar stimuli of light and sound set the peripheral sense-organs in activity, and call back the nervous system to its complete round of healthy action, the illusion disappears, and we smile at our alarms and agonies, saying, "Behold, it was a dream!"

On the practical side, the illusions and hallucinations of sleep must be regarded as comparatively harmless. The sleeper, in healthy conditions of sleep, ceases to be an agent, and the illusions which enthrall his brain have no evil practical consequences. They may, no doubt, as we shall see in a future chapter, occasionally lead to a subsequent confusion of fiction and reality in waking recollection. But with the exception of this, their worst effect is probably the lingering sense of discomfort which a "nasty dream" sometimes leaves with us, though this may be balanced by the reverberations of happy dream-emotions which sometimes follow us through the day. And however this be, it is plain that any disadvantages thus arising are more than made good by the consideration that our liability to these nocturnal illusions is connected with the need of that periodic recuperation of the higher nervous structures which is a prime condition of a vigorous intellectual activity, and so of a triumph over illusion during waking life.

For these reasons dreams may properly be classed with the illusions of normal or healthy life, rather than with those of disease. They certainly lie nearer this region than the very similar illusions of the somnambulist, which with respect to their origin appear to be more distinctly connected with a pathological condition of the nervous system, and which with respect to their practical consequences may easily prove so disastrous.

After-Dreams.—In concluding this account of dreams, I would call attention to the importance of the transition states between sleeping and waking, in relation to the production of sense-illusion. And this point may be touched on here all the more appropriately, since it helps to bring out the close relation between waking and sleeping illusion. The mind does not pass suddenly and at a bound from the condition of dream-fancy to that of waking perception. I have already had occasion to touch on the "hypnagogic state," that condition of somnolence or "sleepiness" in which external impressions cease to act, the internal attention is relaxed, and the weird imagery of sleep begins to unfold itself. And just as there is this anti-

* See Radestock, *op. cit.*, ch. ix.: *Vergleichung des Traumes mit dem Wahnstun.*

pation of dream-hallucination in the presomnial condition, so there is the survival of it in the postsomnial condition. As I have observed, dreams sometimes leave behind them, for an appreciable interval after waking, a vivid after-impression, and in some cases even the semblance of a sense-perception.

If one reflects how many ghosts and other miraculous apparitions are seen at night, and when the mind is in a more or less somnolent condition, the idea is forcibly suggested that a good proportion of these visions are the *débris* of dreams. In some cases, indeed, as that of Spinoza, already referred to, the hallucination (in Spinoza's case that of "a scurvy black Brazilian") is recognized by the subject himself as a dream-image.* I am indebted to Mr. W. H. Pollock for a

fact which curiously illustrates the position here adopted. A lady was staying at a country house. During the night and immediately on waking up she had an apparition of a strange-looking man in mediæval costume, a figure by no means agreeable, and which seemed altogether unfamiliar to her. The next morning, on rising, she recognized the original of her hallucinatory image in a portrait hanging on the wall of her bedroom, which must have impressed itself on her brain before the occurrence of the apparition, though she had not attended to it. Oddly enough, she now learnt for the first time that the house at which she was staying had the reputation of being haunted, and by the very same somewhat repulsive-looking mediæval personage that had troubled her inter-somnolent moments. The case seems to me to be typical with respect to the genesis of ghosts, and of the reputation of haunted houses.

* For Spinoza's experience, given in his own words, see Mr. F. Pollock's *Spinoza*, p. 57; cf. what Wundt says on his experience, *Physiologische Psychologie*, p. 648, footnote 2.



ILLUSIONS:

A PSYCHOLOGICAL STUDY.

By JAMES SULLY,

AUTHOR OF "SENSATION AND INTUITION," "PESSIMISM," ETC.

IN TWO PARTS.—PART SECOND.

CHAPTER VIII.

ILLUSIONS OF INTROSPECTION.

WE have now, perhaps, sufficiently reviewed sense-illusions, both of waking life and of sleep. And having roughly classified them according to their structure and origin, we are ready to go forward and inquire whether the theory thus reached can be applied to other forms of illusory error. And here we are compelled to inquire at the outset if anything analogous to sense-illusion is to be found in that other great region of presentative cognition usually marked off from external perception as internal perception, self-reflection, or introspection.

Illusions of Introspection defined.—This inquiry naturally sets out with the question: What is meant by introspection? This cannot be better defined, perhaps, than by saying that it is the mind's immediate reflective cognition of its own states as such.

In one sense, of course, everything we know may be called a mental state, actual or imagined. Thus, a sense-impression is known, exactly like any other feeling of the mind, as a mental phenomenon or mental modification. Yet we do not usually speak of introspectively recognizing a sensation. Our sense-impressions are marked off from all other feelings by having an objective character, that is to say, an immediate relation to the external world, so that in attending to one of them our minds pass away from themselves in what Professor Bain calls the attitude of objective regard. Introspection is confined to feelings which want this intimate connection with the external region, and includes sensation only so far as it is viewed apart

from external objects and on its mental side as a feeling, a process which is next to impossible where the sensation has little emotional color, as in the case of an ordinary sensation of sight or of articulate sound.

This being so, errors of introspection, supposing such to be found, will in the main be sufficiently distinguished from those of perception. Even an hallucination of sense, whether setting out from a subjective sensation or not, always contains the semblance of a sense-impression, and so would not be correctly classed with errors of introspection.

Just as introspection must be marked off from perception, so must it be distinguished from memory. It may be contended that, strictly speaking, all introspection is retrospection, since even in attending to a present feeling the mind is reflectively representing to itself the immediately preceding momentary experience of that feeling. Yet the adoption of this view does not hinder us from drawing a broad distinction between acts of introspection and acts of memory. Introspection must be regarded as confined to the knowledge of immediately antecedent mental states with reference to which no error of memory can be supposed to arise.

It follows from this that an illusion of introspection could only be found in connection with the apprehension of present or immediately antecedent mental states. On the other hand, any illusions connected with the consciousness of personal continuity and identity would fall rather under the class of mnemonic than that of introspective error.

Once more, introspection must be carefully distinguished from what I have called belief. Some of our beliefs may be found to grow

out of and be compounded of a number of introspections. Thus, my conception of my own character, or my psychological conception of mind as a whole, may be seen to arise by a combination of the results of a number of acts of introspection. Yet, supposing this to be so, we must still distinguish between the single representative act of introspection and the representative belief growing out of it.

It follows from this that, though an error of the latter sort might conceivably have its origin in one of the former; though, for example, a man's illusory opinion of himself might be found to involve errors of introspection, yet the two kinds of illusion would be sufficiently unlike. The latter would be a simple presentative error, the former a compound representative error.

Finally, in order to complete this preliminary demarkation of our subject-matter, it is necessary to distinguish between an introspection (apparent or real) of a feeling or idea, and a process of inference based on this feeling. The term introspective knowledge must, it is plain, be confined to what is or appears to be in the mind at the moment of inspection.

By observing this distinction, we are in a position to mark off an *illusion* of introspection from a *fallacy* of introspection. The former differs from the latter in the absence of anything like a conscious process of inference. Thus, if we suppose that the derivation by Descartes of the fact of the existence of God from his possession of the idea to be erroneous, such a consciously performed act of reasoning would constitute a fallacy rather than an illusion of introspection.

We may, then, roughly define an illusion of introspection as an error involved in the apprehension of the contents of the mind at any moment. If we mistake the quality or degree of a feeling or the structure of a complex mass of feeling, or if we confuse what is actually present to the mind with some inference based on this, we may be said to fall into an illusion of introspection.

But here the question will certainly be raised: How can we conceive the mind erring as to the nature of its present contents; and what is to determine, if not my immediate act of introspection, what is present in my mind at any moment? Indeed, to raise the possibility of error in introspection seems to do away with the certainty of presentative knowledge.

If, however, the reader will recall what was said in an earlier chapter about the possibility of error in recognizing the quality of a sense-impression, he will be prepared for a similar possibility here. What we are accustomed to call a purely presentative cognition is, in truth, partly representative. A feeling as pure feeling is not known; it is only known when it is distinguished, as to quality or degree, and so classed or brought under some representation of a kind or description of feeling, as acute, painful, and so

on. The accurate recognition of an impression of color depends, as we have seen, on this process of classing being correctly performed. Similarly, the recognition of internal feelings implies the presence of the appropriate or corresponding class-representation. Accordingly, if it is possible for a wrong representation to get substituted for the right one, there seems to be an opening for error.

Any error that would thus arise can, of course, only be determined as such in relation to some other act of introspection of the same mind. In matters of internal perception other minds cannot directly assist us in correcting error as they can in the case of external perception, though, as we shall see by and by, they may do so indirectly. The standard of reality directly applicable to introspective cognition is plainly what the individual mind recognizes at its best moments, when the processes of attention and classifying are accurately performed, and the representation may be regarded with certainty as answering to the feeling. In other words, in the sphere of internal, as in that of external experience, the criterion of reality is the average and perfect, as distinguished from the particular variable and imperfect act of cognition.

We see, then, that error in the process of introspection is at least conceivable. And now let us examine this process a little further, in order to find out what probabilities of error attach to it.

To begin with, then, an act of introspection, to be complete, clearly involves the apprehension of an internal feeling or idea as something mental and marked off from the region of external experience. This distinct recognition of internal states of mind as such, in opposition to external impressions, is by no means easy, but presupposes a certain degree of intellectual culture, and a measure of the power of abstract attention.

Confusion of Internal and External Experience.—Accordingly, we find that where this is wanting there is a manifest disposition to translate internal feelings into terms of external impressions. In this way there may arise a slight amount of habitual and approximately constant error. Not that the process approaches to one of hallucination; but only that the internal feelings are intuited as having a cause or origin analogous to that of sense-impressions. Thus to the uncultivated mind a sudden thought seems like an audible announcement from without. The superstitious man talks of being led by some good or evil spirit when new ideas arise in his mind or new resolutions shape themselves. To the simple intelligence of the boor every thought presents itself as an analogue of an audible voice, and he commonly describes his rough musings as saying this and that to himself. And this mode of viewing the matter is reflected even in the language of cultivated persons. Thus we say, "The idea struck me," or "was borne in on me," "I was forced to do so and so," and so on, and in this man-

ner we tend to assimilate internal to external mental phenomena.

Much the same thing shows itself in our customary modes of describing our internal feelings of pleasure and pain. When a man in a state of mental depression speaks of having "a load" on his mind it is evident that he is interpreting a mental by help of an analogy to a bodily feeling. Similarly, when we talk of the mind being torn by doubt or worn by anxiety. It would seem as though we tended mechanically to translate mental pleasures and pains into the language of bodily sensations.

The explanation of this deeply rooted tendency to a slightly illusory view of our mental states is, I think, an easy one. For one thing, it follows from the relation of the mental image to the sense-impression that we should tend to assimilate the former to the latter as to its nature and origin. This would account for the common habit of regarding thoughts, which are of course accompanied by representatives of their verbal symbols, as internal voices, a habit which is probably especially characteristic of the child and the uncivilized man, as we have found it to be characteristic of the insane.

Another reason, however, must be sought for the habit of assimilating internal feelings to external sensations. If language has been evolved as an incident of social life, at once one of its effects and its causes, it would seem to follow that it must have first shaped itself to the needs of expressing these common objective experiences which we receive by way of our senses. Our habitual modes of thought, limited as they are by language, retain traces of this origin. We cannot conceive any mental process except by some vague analogy to a physical process. In other words, we can even now only think with perfect clearness when we are concerned with some object of common cognition. Thus, the sphere of external sensation and of physical agencies furnishes us with the one type of thinkable thing or object of thought, and we habitually view subjective mental states as analogues of these.

Still, it may be said that these slight nascent errors are hardly worth naming, and the question would still appear to recur whether there are other fully developed errors deserving to rank along with illusions of sense. Do we, it may be asked, ever actually mistake the quality, degree, or structure of our internal feelings in the manner hinted above, and if so, what is the range of such error? In order to appreciate the risks of such error, let us compare the process of self-observation with that of external perception with respect to the difficulties in the way of accurate representative knowledge.

Misreading of Internal Feelings.—First of all, it is noteworthy that a state of consciousness at any one moment is an exceedingly complex thing. It is made up of a mass of feelings and active impulses which often combine and blend in a most inextricable way. Ex-

ternal sensations come in groups, too, but as a rule they do not fuse in apparently simple wholes as our internal feelings often do. The very possibility of perception depends on a clear discrimination of sense-elements, for example, the several sensations of color obtained by the stimulation of different parts of the retina.* But no such clearly defined mosaic of feelings presents itself in the internal region: one element overlaps and partly loses itself in another, and subjective analysis is often an exceedingly difficult matter. Our consciousness is thus a closely woven texture in which the mental eye often fails to trace the several threads or strands. Moreover, there is the fact that many of these ingredients are exceedingly shadowy, belonging to that obscure region of sub-consciousness which it is so hard to penetrate with the light of discriminative attention. This remark applies with particular force to that mass of organic feelings which constitutes what is known as *cœnæsthesis*, or vital sense.

While, to speak figuratively, the minute anatomy of consciousness is thus difficult with respect to longitudinal sections of the mental column, it is no less difficult with respect to transverse sections. Under ordinary circumstances, external impressions persist so that they can be transfixed by a deliberate act of attention, and objects rarely flit over the external scene so rapidly as to allow us no time for a careful recognition of the impression. Not so in the case of the internal region of mind. The composite states of consciousness just described never remain perfectly uniform for the shortest conceivable duration. They change continually, just as the contents of the kaleidoscope vary with every shake of the instrument. Thus, one shade of feeling runs into another in such a way that it is often impossible to detect its exact quality; and even when the character of the feeling does not change, its intensity is undergoing alterations so that an accurate observation of its quantity is impracticable. Also, in this unstable shifting internal scene features may appear for a duration too short to allow of close recognition. In this way it happens that we cannot sharply divide the feeling of the moment from its antecedents and its consequents.

If, now, we take these facts in connection with what has been said above respecting the nature of the process of introspection, the probability of error will be made sufficiently clear. To transfix any particular feeling of the moment, to selectively attend to it, and to bring it under the proper representation, is an operation that requires time, a time which, though short, is longer than the fugitive character of so much of our internal mental life allows. From all of which it would appear to follow that it must be very easy to overlook, confuse, and transform, both as to qual-

* I need hardly observe that physiology shows that there is no separation of different elementary color-sensations which are locally identical.

ity and as to quantity, the actual ingredients of our internal consciousness.

From these sources there spring a number of small errors of introspection which, to distinguish them from others to be spoken of presently, may be called passive. These would include all errors in detecting what is in consciousness due to the intricacies of the phenomena, and not aided by any strong bias. For example, a mental state may fail to disclose its component parts to introspective attention. Thus, a motive may enter into our action which is so entangled with other feelings as to escape our notice. The fainter the feeling the greater the difficulty of detaching it and inspecting it in isolation. Again, an error of introspection may have its ground in the fugitive character of a feeling. If, for example, a man is asked whether a rapid action was a voluntary one, he may in retrospection easily imagine that it was not so, when as a matter of fact the action was preceded by a momentary volition. When a person exclaims, "I did a thing inadvertently or mechanically," it often means that he did not note the motive underlying the action. Such transitory feelings which cannot at the moment be seized by an act of attention are pretty certain to disappear at once, leaving not even a temporary trace in consciousness.

We will now pass to the consideration of other illusions of introspection more analogous to what I have called the active illusions of perception. In our examination of these we found that a pure representation may under certain circumstances simulate the appearance of a presentation, that a mental image may approximate to a sense-impression. In the case of the internal feelings this liability shows itself in a still more striking form.

The higher feelings or emotions are distinguished from the simple sense-feelings in being largely representative. Thus, a feeling of contentment at any moment, though no doubt conditioned by the bodily state and the character of the organic sensations or cœnæsthesis, commonly depends for the most part on intellectual representations of external circumstances or relations, and may be called an ideal foretaste of actual satisfactions, such as the pleasures of success, of companionship, and so on. This being so, it is easy for imagination to call up a semblance of these higher feelings. Since they depend largely on representation, a mere act of representation may suffice to excite a degree of the feeling hardly distinguishable from the actual one. Thus, to imagine myself as contented is really to see myself at the moment as actually contented. Again, the actor, though, as we shall see by and by, he does not feel all that the spectator is apt to attribute to him, tends, when vividly representing to himself a particular shade of feeling, to regard himself as actually feeling in this way. Thus, it is said of Garrick, that when acting Richard III., he felt himself for the moment to be a villain.

We should expect from all this that in the

act of introspection the mind is apt, within certain limits, to find what it is prepared to find. And since there is in these acts often a distinct wish to detect some particular feeling, we can see how easy it must be for a man through bias and a wrong focusing of the attention to deceive himself up to a certain point with respect to the actual contents of his mind.

Let us examine one of these active illusions a little more fully. It would at first sight seem to be a perfectly simple thing to determine at any given moment whether we are enjoying ourselves, whether our emotional condition rises above the pleasure-threshold or point of indifference and takes on a positive hue of the agreeable or pleasurable. Yet there is good reason for supposing that people not unfrequently deceive themselves on this matter. It is, perhaps, hardly an exaggeration to say that most of us are capable of imagining that we are having enjoyment when we conform to the temporary fashion of social amusement. It has been cynically observed that people go into society less in order to be happy than to seem so, and one may add that in this semblance of enjoyment they may, provided they are not *blasé*, deceive themselves as well as others. The expectation of enjoyment, the knowledge that the occasion is intended to bring about this result, the recognition of the external signs of enjoyment in others—all this may serve to blind a man in the earlier stages of social amusement to his actual mental condition.

If we look closely into this variety of illusion, we shall see that it is very similar in its structure and origin to that kind of erroneous perception which arises from inattention to the actual impression of the moment under the influence of a strong expectation of something different. The representation of ourselves as entertained dislodges from our internal field of vision our actual condition, relegating this to the region of obscure consciousness. Could we for a moment get rid of this representation and look at the real feelings of the time, we should become aware of our error; and it is possible that the process of becoming *blasé* involves a waking up to a good deal of illusion of the kind.

Just as we can thus deceive ourselves within certain limits as to our emotional condition, so we can mistake the real nature of our intellectual condition. Thus, when an idea is particularly grateful to our minds, we may easily imagine that we believe it, when in point of fact all the time there is a sub-conscious process of criticism going on, which if we attended to it for a moment would amount to a distinct act of disbelief. Some persons appear to be capable of going on habitually practicing this petty deceit on themselves, that is to say, imagining they believe what in fact they are strongly inclined to doubt. Indeed, this remark applies to all the grateful illusions respecting ourselves and others, which will have to be discussed by and by. The impulse to hold to the illusion in spite

of critical reflection, involves the further introspective illusion of taking a state of doubt for one of assurance. Thus, the weak, flattered man or woman manages to keep up a sort of fictitious belief in the truth of the words which are so pleasant to the ear.

It is plain that the external conditions of life impose on the individual certain habits of feeling which often conflict with his personal propensities. As a member of society he has a powerful motive to attribute certain feelings to himself, and this motive acts as a bias in disturbing his vision of what is actually in his mind. While this holds good of lighter matters, as that of enjoyment just referred to, it applies still more to graver matters. Thus, for example, a man may easily persuade himself that he feels a proper sentiment of indignation against a perpetrator of some mean or cruel act, when as a matter of fact his feeling is much more one of compassion for the previously liked offender. In this way we impose on ourselves, disguising our real sentiments by a thin veil of make-believe.

So far I have spoken of an illusion of introspection as analogous to the slight misapprehensions of sense-impression which were touched on in connection with illusions of sense (Chapter III.). It is to be observed, however, that the confusing of elements of consciousness, which is so prominent a factor in introspective illusion, involves a species of error closely analogous to a complete illusion of perception, that is to say, one which involves a misinterpretation of a sense-impression.

This variety of illusion is illustrated in the case in which a present feeling or thought is confounded with some inference based on it. For example, a present thought may, through forgetfulness, be regarded as a new discovery. Its originality appears to be immediately made known in the very freshness which characterizes it. Every author probably has undergone the experience of finding that ideas which started up to his mind as fresh creations, were unconscious reminiscences of his own or of somebody else's ideas.

In the case of present emotional states this liability to confuse the present and the past is far greater. Here there is something hardly distinguishable from an active illusion of sense-perception. In this condition of mind a man often says that he has an "intuition" of something supposed to be immediately given in the feeling itself. For instance, one whose mind is thrilled by the pulsation of a new joy exclaims, "This is the happiest moment of my life," and the assurance seems to be contained in the very intensity of the feeling itself. Of course, cool reflection will tell him that what he affirms is merely a belief, the accuracy of which presupposes processes of recollection and judgment, but to the man's mind at the moment the supremacy of this particular joy is immediately intuited. And so with the assurance that the present feeling, for example of love, is undying, that

it is equal to the most severe trials, and so on. A man is said to *feel* at the moment that it is so, though as the facts believed have reference to absent circumstances and events, it is plain that the knowledge is by no means intuitive.

At such times our minds are in a state of pure feeling: intellectual discrimination and comparison are no longer possible. In this way our emotions in the moments of their greatest intensity carry away our intellects with them, confusing the region of pure imagination with that of truth and certainty, and even the narrow domain of the present with the vast domain of the past and future. In this condition differences of present and future may be said to disappear and the energy of the emotion to constitute an immediate assurance of its existence absolutely.*

The great region for the illustration of these active illusions is that of the moral and religious life. With respect to our real motives, our dominant aspirations, and our highest emotional experiences, we are greatly liable to deceive ourselves. The moralist and the theologian have clearly recognized the possibilities of self-deception in matters of feeling and impulse. To them it is no mystery that the human heart should mistake the fictitious for the real, the momentary and evanescent for the abiding. And they have recognized, too, the double bias in these errors, namely, the powerful disposition to exaggerate the intensity and persistence of a present feeling on the one hand, and on the other hand to take a mere wish to feel in a particular way for the actual possession of the feeling.

Philosophic Illusions.—The opinion of theologians respecting the nature of moral introspection presents a singular contrast to that entertained by some philosophers as to the nature of self-consciousness. It is supposed by many of these that in interrogating their internal consciousness they are lifted above all risk of error. The "deliverance of consciousness" is to them something bearing the seal of a supreme authority, and must not be called in question. And so they make an appeal to individual consciousness a final resort in all matters of philosophical dispute.

Now, on the face of it, it does not seem probable that this operation should have an immunity from all liability to error. For the matters respecting which we are directed to introspect ourselves, are the most subtle and complex things of our intellectual and emotional life. And some of these philosophers even go so far as to affirm that the plain man is quite equal to the niceties of this process.

It has been brought as a charge against some

* This kind of error is, of course, common to all kinds of cognition, in so far as they involve comparison. Thus, the presence of the excitement of the emotion of wonder at the sight of an unusually large object, say a mountain, disposes the mind to look on it as the largest of its class. Such illusions come midway between presentative and representative illusions. They might, perhaps, be specially marked off as illusions of "judgment."

of these same philosophers that they have based certain of their doctrines on errors of introspection. This charge must, of course, be received with some sort of suspicion here, since it has been brought forward by avowed disciples of an opposite philosophic school. Nevertheless, as there is from our present disinterested and purely scientific point of view a presumption that philosophers like other men are fallible, and since it is certain that philosophical introspection does not materially differ from other kinds, it seems permissible just to glance at some of these alleged illusions in relation to other and more vulgar forms. Further reference to them will be made at the end of our study.

These so-called philosophical illusions will be found, like the vulgar ones just spoken of, to illustrate the distinction drawn between passive and active illusions. That is to say, the alleged misreading of individual consciousness would result now from a confusion of distinct elements, including wrong suggestion, due to the intricacies of the phenomena, now from a powerful predisposition to read something into the phenomena.

A kind of illusion in which the passive element seems most conspicuous would be the error into which the interrogator of the individual consciousness is said to fall respecting simple unanalyzable states of mind. On the face of it, it is not likely that a mere inward glance at the tangle of conscious states should suffice to determine what is such a perfectly simple mental phenomenon. Accordingly, when a writer declares that an act of introspection demonstrates the simple unanalyzable character of such a feeling as the sentiment of beauty or that of moral approval, the opponent of this view clearly has some show of argument for saying that this simplicity may be altogether illusory and due to the absence of a perfect act of attention. Similarly, when it is said that the idea of space contains no representations of muscular sensation, the statement may clearly arise from the want of a sufficiently careful kind of introspective analysis.*

* So far as any mental state, though originating in a fusion of elements, is now unanalyzable by the best effort of attention, we must of course regard it in its present form as simple. This distinction between what is simple or complex in its present nature, and what is originally so, is sometimes overlooked by psychologists. Whether the feelings and ideas here referred to are now simple or complex, cannot, I think, yet be very certainly determined. To take the idea of space, I find that after practice I recognize the ingredient of muscular feeling much better than I did at first. And this exactly answers to Helmholtz's contention that elementary sensations as partial tones can be detected after practice. Such separate recognition may be said to depend on correct representation. On the other hand, it must be allowed that there is room for the intuitionist to say that the associationist is here reading something into the idea which does not belong to it. It is to be added that the illusion which the associationist commonly seeks to fasten on his opponent is that of confusing *feels* with original simplicity. Thus, he says that, though the idea of space may now to all intents and purposes be simple, it was really built up out

In most cases of these alleged philosophical errors, however, the active and passive factors seem to combine. There are certain intricacies in the mental phenomenon itself favoring the chances of error, and there are independent predispositions leading the mind to look at the phenomenon in a wrong way. This seems to apply to the famous declaration of a certain school of thinkers that by an act of introspection we can intuit the fact of liberty, that is to say, a power of spontaneous determination of action superior to and regulative of the influence of motives. It may be plausibly contended that this idea arises partly from a mixing up of facts of present consciousness with inferences from them, and partly from a natural predisposition of the mind to invest itself with this supreme power of absolute origination.*

In a similar way, it might be contended that other famous philosophic dicta are founded on a process of erroneous introspection of subjective mental states. In some cases, indeed, it seems a plausible explanation to regard these illusions as mere survivals in attenuated shadowy form of grosser popular illusions. But this is not yet the time to enter on these, which, moreover, hardly fall perhaps under our definition of an illusion of introspection.

Value of the Introspective Method.—In drawing up this rough sketch of the illusions of introspection, I have had no practical object in view. I have tried to look at the facts as they are apart from any conclusions to be drawn from them. The question how far the liability to error in any region of inquiry vitiates the whole process is a difficult one; and the question whether the illusions to which we are subject in introspection materially affect the value of self-knowledge as a whole and consequently of the introspective method in psychology, as many affirm, is too subtle a one to be fully treated now. All that I shall attempt here is to show that it does not do this any more than the risk of sense-illusion can be said materially to affect the value of external observation.

It is to be noted first of all that the errors of introspection are much more limited than those of sense-perception. They broadly answer to the slight errors connected with the discrimination and recognition of the sense-impression. There is nothing answering to a complete hallucination in the sphere of the inner mental life. It follows, too, from what has been said above, that the amount of active error in introspection is insignificant, since the representation of a feeling or belief is so very similar to the actual experience of it.

of many distinct elements. More will be said on the relation of questions of nature and genesis further on.

* I may as well be frank and say that I myself, assuming free-will to be an illusion, have tried to trace the various threads of influence which have contributed to its remarkable vitality. (See *Sensation and Intuition*, ch. v., "The Genesis of the Free-Will Doctrine.")

In brief, the errors of introspection, though numerous, are all too slight to render the process of introspection as a whole unsound and untrustworthy. Though, as we have seen, it involves, strictly speaking, an ingredient of representation, this fact does not do away with the broad distinction between presentative and representative cognition. Introspection is presentative in the sense that the reality constituting the object of cognition, the mind's present feeling, is as directly present to the knowing mind as anything can be conceived to be. It may be added that the power of introspection is a comparatively new acquisition of the human race, and that, as it improves, the amount of error connected with its operation may reasonably be expected to become infinitesimal.

It is often supposed by those who undervalue the introspective method in psychology that there is a special difficulty in the detection of error in introspection, owing to the fact that the object of inspection is something individual and private, and not open to common scrutiny as the object of external perception. Yet, while allowing a certain force to this objection I would point out, first of all, that even in sense-perception, what the individual mind is immediately certain of is its own sensations. The relatively perfect certainty which finally attaches to the presentative side of sense-perception is precisely that which finally attaches to the results of introspection.

In the second place, it may be said that the contrast between the inner and the outer experience is much less than it seems. In many cases our emotions are the direct result of a common external cause, and even when they are not thus attached to some present external circumstance, we are able, it is admitted, by the use of language, roughly to compare our individual feelings. And such comparison is continually bringing to light the fact that there is a continuity in our mental structure, that our highest thoughts and emotions lead us back to our common sense-impressions, and that consequently, in spite of all individual differences of temperament and mental organization, our inner experience is in all its larger features a common experience.

I may add that this supposition of the common nature of our internal experience, as a whole, not only underlies the science of psychology, but is implied in the very process of detecting and correcting errors of introspection. I do not mean that in matters of feeling "authority" is to override "private judgment." Our last resort with respect to things of the mind is, as I have said, that of careful self-inspection. And the progress of psychology and the correction of illusion proceed by means of an ever-improving exercise of the introspective faculty. Yet such individual inspection can at least be guided by the results of others' similar inspection, and should be so guided as soon as a general consensus in matters of internal experience is

fairly made out. In point of fact, the preceding discussion of illusions of introspection has plainly rested on the sufficiently verified assumption that the (almost and most efficient kind of introspection, in bringing to light what is permanent as compared with what is variable in the individual cognition, points in the direction of a common body of introspected fact.

CHAPTER IX.

OTHER QUASI-PRESENTATIVE ILLUSIONS: ERRORS OF INSIGHT.

BESIDES the perception of external objects, and the inspection of our internal mental states, there are other forms of quasi-presentative cognition which need to be touched on here, inasmuch as they are sometimes erroneous and illusory.

In the last chapter I alluded to the fact that emotion may arise as the immediate accompaniment of a sense-impression. When this is the case there is a disposition to read into the external object a quality answering to the emotion, just as there is a disposition to ascribe to objects qualities of heat and cold answering to the sensations thus called. And such a reference of an emotional result to an external exciting cause approximates in character to an immediate intuition. The cognition of the quality is instantaneous, and quite free from any admixture of conscious inference. Accordingly, we have to inquire into the illusory forms of such intuition, if such there be.

Æsthetic Intuition.—Conspicuous among these quasi-presentative emotional cognitions is æsthetic intuition, that is to say, the perception of an object as beautiful. It is not necessary here to raise the question whether there is, strictly speaking, any quality in things answering to the sentiment of beauty in our minds: this is a philosophical and not a psychological question, and turns on the further question, what we mean by object. All that we need to assume here is that there are certain aspects of external things, certain relations of form, together with a power of exciting certain pleasurable ideas in the spectator's mind, which are commonly recognized as the cause of the emotion of beauty, and indeed regarded as constituting the embodiments of the objective quality, beauty. Æsthetic intuition thus clearly implies the immediate assurance of the existence of a common source of æsthetic delight, a source bound up with an object of common sense-perception. And so we may say that to call a thing beautiful is more or less distinctly to recognize it as a cause of a present emotion, and to attribute to it a power of raising a kindred emotion in other minds.

Æsthetic Illusion.—According to this view of the matter, an illusion of æsthetic intuition would arise whenever this power of affecting a number of minds pleasurable is wrongly attributed, by an act of "intuition," to an ob-

ject of sense-perception, on the ground of a present personal feeling.

Now, this error is by no means unfrequent. Our delight in viewing external things, though agreeing up to a certain point, does not agree throughout. It is a trite remark that there is a large individual factor, a considerable "personal equation," in matters of taste, as in other matters. Permanent differences of natural sensibility, of experience, of intellectual habits, and so on, make an object æsthetically impressive and valuable to one man and not to another. Yet these differences tend to be overlooked. The individual mind, filled with delight at some spectacle, automatically projects its feeling outwards in the shape of a cause of a common sentiment. And the force of this impulse cannot be altogether explained as the effect of past experiences and of association. It seems to involve, in addition, the play of social instincts, the impulse of the individual mind to connect itself in sympathy with the collective mind.

Here, as in the other varieties of illusion already treated of, we may distinguish between a passive and an active side; only in this case the passive side must not be taken as corresponding to any common suggestions of the object, as in the case of perception proper. So far as an illusion of æsthetic intuition may be considered as passive, it must be due to the effect of circumscribed individual associations with the object.

All agree that what is called beauty consists, to a considerable extent, of a power of awaking pleasant suggestions, but in order that these should constitute a ground of æsthetic value, they must be common, participated in by all, or at least by an indefinite number. This will be the case when the association rests on our common every-day experiences, and our common knowledge of things, as in the case of the peaceful beauty of an ascending curl of blue smoke in a woody landscape, or the awful beauty of a lofty precipice. On the other hand, when the experience and recollections, which are the source of the pleasure, are restricted and accidental, any attribution of objective worth is illusory. Thus, the ascription of beauty to one's native village, to one's beloved friends, and so on, in so far as it carries the conviction of objective worth, may imply a confusion of the individual with the common experience.

The active side of this species of illusions would be illustrated in every instance of ascribing beauty to objects which is due, in a considerable measure at least, to some pre-existing disposition in the mind, whether permanent or temporary. A man brings his peculiar habits of thought and feeling to the contemplation of objects, and the æsthetic impression produced is colored by these predispositions. Thus, a person of a sad and gloomy cast of mind will be disposed to see a somber beauty where other eyes see nothing of the kind. And then there are all the

effects of temporary conditions or the imagination and the feelings. Thus, the individual mind may be focused in a certain way through the suggestion of another. People not seldom see a thing to be beautiful because they are told that it is so. It might not be well to inquire too curiously how many of the frequenters of the annual art exhibitions use their own eyes in framing their æsthetic judgments. Or the temporary predisposition may reside in a purely personal feeling or desire uppermost at the time. Our enjoyment of nature or of art is colored by our temporary mood. There are moments of exceptional mental exhilaration, when even a commonplace scene will excite an appreciable kind of admiration. Or there may be a strong wish to find a thing beautiful begotten of another feeling. Thus, a lover desires to find beauty in his mistress; or, having found it in her face and form, desires to find a harmonious beauty in her mind. In these different ways temporary accidents of personal feeling and imagination enter into and determine our æsthetic intuition, making it deviate from the common standard. This kind of error may even approximate in character to an hallucination of sense when there is nothing answering to a common source of æsthetic pleasure. Thus, the fond mother, through the very force of her affection, will construct a beauty in her child, which for others is altogether non-existent.

What applies to the perception of beauty in the narrow sense will apply to all other modes of æsthetic intuition, as that of the sublime and the ludicrous, and the recognition of the opposite of beauty or the ugly. In like manner, it will apply to moral intuition in so far as it is an instantaneous recognition of a certain quality in a perceived action based on, or at least conjoined with, a particular emotional effect. In men's intuitive judgments respecting the right and the wrong, the noble and base, the admirable and contemptible, and so on, we may see the same kind of illusory universalizing of personal feeling as we have seen in their judgments respecting the beautiful. And the sources of the error are the same in the two cases. Accidents of experience, giving special associations to the actions, will not infrequently warp the individual intuition. Ethical culture, like æsthetic culture, means a continual casting aside of early illusory habits of intuition. And further, moral intuition illustrates all those effects of feeling which we have briefly traced in the case of æsthetic intuition. The perversions of the moral intuition under the sway of prejudice are too familiar to need more than a bare allusion.

Nature of Insight.—There remains one further mode of cognition which approximates in character to presentative knowledge, and is closely related to external perception. I refer to the commonly called "intuitive" process by which we apprehend the feelings and thoughts of other minds through the external signs of movement, vocal sound, etc.,

which make up expression and language. This kind of knowledge, which is not sufficiently marked off from external perception on the one side and introspection on the other, I venture to call insight.

I am well aware that this interpretation of the mental states of others is commonly described as a process of inference involving a conscious reference to our own similar experiences. I willingly grant that it is often so. At the same time, it must be perfectly plain that it is not always so. It is, indeed, doubtful whether in its first stages in early life it is invariably so, for there seem to be good reasons for attributing to the infant mind a certain degree of instinctive or inherited capability in making out the looks and tones of others.* And, however this may be, it is certain that with the progress of life a good part of this interpretation comes to be automatic or unconscious, approximating in character to a sense-perception. To recognize contentment in a placid smile is, one would say, hardly less immediate and intuitive than to recognize the coolness of a stream.

We must, of course, all allow that the fusion of the presentative and the representative element is, speaking generally, more complete in the case of sense-perception than in that here considered. In spite of Berkeley's masterly account of the *rationale* of visual perception as an interpretation of "visual language" and all that has confirmed it, the plain man cannot, at the moment of looking at an object, easily bring himself to admit that distance is not directly present to his vision. On the other hand, on cool reflection, he will recognize that the complacent benevolent sentiment is distinct from the particular movements and changes in the eye and other features which express it. Yet, while admitting this, I must contend that there is no very hard and fast line dividing the two processes, but that the reading of others' feelings approximates in character to an act of perception.

An intuitive insight may, then, be defined as that instantaneous, automatic, or "unconscious" mode of interpreting another's feeling which occurs whenever the feeling is fully expressed, and when its signs are sufficiently familiar to us. This definition will include the interpretation of thoughts by means of language, though not, of course, the belief in an objective fact grounded on a recognition of another's belief. On the other hand, it will exclude all the more complex interpretations of looks and words which imply conscious comparison, reflection, and reasoning. Further, it will exclude a large part of the interpretation of actions as motivated, since this, though sometimes approaching the intu-

itive form, is for the most part a process of conjectural or doubtful inference, and wanting in the immediate assurance which belongs to an intuitive reading of a present emotion or thought.

From this short account of the process of insight, its relation to perception and introspection becomes pretty plain. On the one hand, it closely resembles sense-perception, since it proceeds by the interpretation of a sense-impression by means of a representative image. On the other hand, it differs from sense-perception, and is more closely allied to introspection in the fact that, while the process of interpretation in the former case is a reconstruction of *external* experiences, in the latter case it is a reconstruction of *internal* experiences. To intuit another's feeling is clearly to represent to ourselves a certain kind of internal experience previously known, in its elements at least, by introspection, while these represented experiences are distinctly referred to another personality.

And now we see what constitutes the object of insight. This is, in part, a common experience, as in the case of sense-perception and æsthetic intuition, since to perceive another's feeling is implicitly to cognize the external conditions of a common insight. But this is clearly not the whole, nor even the main part of objective reality in this act of cognition. An intuitive insight differs from a sense-perception in that it involves an immediate assurance of the existence of a feeling presentatively known, though not to our own minds. The object in insight is thus a presentative feeling as in introspection, though not our own, but another's. And so it differs from the object in sense-perception in so far as this last involves sense-experiences, as muscular and tactual feelings, which are not at the moment presentatively known to any mind.

Illusions of Insight.—And now we are in a position, perhaps, to define an illusion of insight, and to inquire whether there is anything answering to our definition. An illusory insight is a quasi-intuition of another's feelings which does not answer to the internal reality as presentatively known to the subject himself. In spite of the errors of introspection dealt with in the last chapter, nobody will doubt that, when it is a question between a man's knowing what is at the moment in his own mind and somebody else's knowing, logic, as well as politeness, requires us to give precedence to the former.

An illusion of insight, like the other varieties of illusion already dealt with, may arise either by way of wrong suggestion or by way of a warping preconception. Let us look at each of these sources apart.

Our insights, like our perceptions, though intuitive in form, are obviously determined by previous experience, association, and habit. Hence, on its passive side, an illusion of insight may be described as a wrong interpretation of a new or exceptional case. For example, having associated the represen-

* I purposely leave aside here the philosophical question, whether the knowledge of others' feelings is intuitive in the sense of being altogether independent of experience, and the manifestation of a fundamental belief. The inherited power referred to in the text might, of course, be viewed as a transmitted result of ancestral experience.

tation of a slight feeling of astonishment with uplifted eyebrows, we irresistibly tend to see a face in which this is a constant feature as expressing this particular shade of emotion. In this way we sometimes fall into grotesque errors as to mental traits. And the most practiced physiognomist may not unfrequently err by importing the results of his special circle of experiences into new and unlike cases.

Much the same thing occurs in language. Our timbre of voice, our articulation, and our vocabulary, like our physiognomy, have about them something individual, and error often arises from overlooking this, and hastily reading common interpretations into exceptional cases. The misunderstandings that arise even among the most open and confiding friends sufficiently illustrate this liability to error.

Sometimes the error becomes more palpable, as, for example, when we visit another country. A foreign language, when heard, provokingly suggests all kinds of absurd meanings through analogies to our familiar tongue. Thus, the Englishman who visits Germany cannot, for a time, hear a lady use the expression, "Mein Mann," without having the amusing suggestion that the speaker is wishing to call special attention to the fact of her husband's masculinity. And doubtless the German who visits us derives a similar kind of amusement from such involuntary comparisons.

A fertile source of illusory insight is, of course, conscious deception on the part of others. The rules of polite society require us to be hypocrites in a small way, and we have occasionally to affect the signs of amiability, interest, and amusement, when our actual sentiment is one of indifference, weariness, or even positive antipathy. And in this way a good deal of petty illusion arises. Although we may be well aware of the general untrustworthiness of this society behavior, such is the force of association and habit, that the bland tone and flattering word irresistibly excite a momentary feeling of gratification, an effect which is made all the more easy by the co-operation of the recipient's own wishes, touched on in the last chapter.

Among all varieties of this deception, that of the stage is the most complete. The actor is a man who has elaborately trained himself in the simulation of certain feelings. And when his acting is of the best quality, and the proper bodily attitude, gesture, tone of voice, and so on, are hit off, the force of the illusion completely masters us. For the moment we lose sight of the theatrical surroundings, and see the actor as really carried away by the passion which he so closely imitates. Histrionic illusion is as complete as any artistic variety can venture to be.*

*I here assume, along with G. H. Lewes and other competent dramatic critics, that the actor does not and dares not feel what he expresses, at least not in the perfectly spontaneous way, and in the same measure in which he appears to feel it.

I have said that our insights are limited by our own mental experience, and so by introspection. In truth, every interpretation of another's look and word is determined ultimately, not by what we have previously observed in others, but by what we have personally felt, or at least have in a sense made our own by intense sympathy. Hence we may, in general, regard an illusion of insight on the active side as a hasty projection of our own feelings, thoughts, etc., into other minds.

We habitually approach others with a predisposition to attribute to them our own modes of thinking and feeling. And this predisposition will be the more powerful, the more desirous we are for sympathy, and for that confirmation of our own views which the reflection of another mind affords. Thus, when making a new acquaintance, people are in general disposed to project too much of themselves into the person who is the object of inspection. They intuitively endow him with their own ideas, ways of looking at things, prejudices of sentiment, and so on, and receive something like a shock when later on they find out how different he is from this first hastily formed and largely performed image.

The same thing occurs in the reading of literature, and the appreciation of the arts of expression generally. We usually approach an author with a predisposition to read our own habits of thought and sentiment into his words. It is probably a characteristic defect of a good deal of current criticism of remote writers, to attribute to them too much of our modern conceptions and aims. Similarly, we often import our own special feelings into the utterances of the poet and of the musical composer. That much of this intuition is illusory, may be seen by a little attention to the "intuitions" of different critics. Two readers of unlike emotional organization will find incompatible modes of feeling in the same poet. And everybody knows how common it is for musical critics and amateurs to discover quite dissimilar feelings in the same composition.*

The effect of this active projection of personal feeling will, of course, be seen most strikingly when there is a certain variety of feeling actually excited at the time in the observer's mind. A man who is in a particularly happy mood tends to reflect his exuberant gladness on others. The lover, in the moment of exalted emotion, reads a response to all his aspirations in his mistress's eyes. Again, a man will tend to project his own present ideas into the minds of others, and so imagine that they know what he knows; and this sometimes leads to a comical kind of embarrassment, and even to a betrayal of something which it was the interest of the person to keep to himself. Once more, in

*The illusory nature of much of this emotional interpretation of music has been ably exposed by Mr. Gurney. (See *The Power of Sound*, p. 345, et seq.)

interpreting language, we may sometimes catch ourselves mistaking the meaning, owing to the presence of a certain idea in the mind at the time. Thus, if I have just been thinking of Comte, and overhear a person exclaim, "I'm positive," I irresistibly tend, for the moment, to ascribe to him an avowal of discipleship to the great positivist.

Poetic Illusion.—The most remarkable example of this projection of feeling is undoubtedly illustrated in the poetic interpretation of inanimate nature. The personification of tree, mountain, ocean, and so on, illustrates, no doubt, the effect of association and external suggestion; for there are limits to such personification. But resemblance and suggestion commonly bear, in this case, but a small proportion to active constructive imagination. One might, perhaps, call this kind of projection the hallucination of insight, since there is nothing objective corresponding to the interpretative image.

The imaginative and poetic mind is continually on the lookout for hints of life, consciousness, and emotion in nature. It finds a certain kind of satisfaction in this half-illusory, dream-like transformation of nature. The deepest ground of this tendency must probably be looked for in the primitive ideas of the race, and the transmission by inheritance of the effect of its firmly fixed habits of mind. The undisciplined mind of early man, incapable of distinguishing the object of perception from the product of spontaneous imagination, and taking his own double existence as the type of all existence, actually saw the stream, the ocean, and the mountain as living beings; and so firmly rooted is this way of regarding objects, that even our scientifically trained minds find it a relief to relapse occasionally into it.*

While there is this general imaginative disposition in the poetic mind to endow nature with life and consciousness, there are special tendencies to project the individual feelings into objects. Every imaginative mind looks for reflections of its own deepest feelings in the world about it. The lonely imbittered heart, craving for sympathy, which he cannot meet with in his fellow-man, finds traces of it in the sighing of the trees or the moaning of the sad sea-wave. Our Poet Laureate, in his great elegy, has abundantly illustrated this impulse of the imagination to reflect its own emotional coloring on to inanimate things; for example in the lines—

"The wild unrest that lives in woe
Would dote and pore on yonder cloud
That rises upward always higher,
And onward drags a laboring breast
And topples round the dreary west,
A looming bastion fringed with fire."

So far I have been considering active illusions of insight as arising through the play

* The reader will note that this impulse is complementary to the other impulse to view all mental states as analogous to impressions produced by external things, on which I touched in the last chapter.

of the impulse of the individual mind to project its feelings outwards, or to see their reflections in external things. I must now add that active illusion may be due to causes similar to those which we have seen to operate in the sphere of illusory perception and introspection. That is to say, there may be a disposition, permanent or temporary, to ascribe a certain kind of feeling to others in accordance with our wishes, fears, and so on.

To give an illustration of the permanent causes, it is well known that a conceited man will be disposed to attribute admiration of himself to others. On the other hand, a shy, timid person will be prone to read into other minds the opposite kind of feeling.

Coming to temporary forces, we find that any expectation to meet with a particular kind of mental trait in a new acquaintance will dispose the observer hastily and erroneously to attribute corresponding feelings to the person. And if this expectation springs out of a present feeling, the bias to illusory insight is still more powerful. For example, a child that fears its parent's displeasure will be prone to misinterpret the parent's words and actions, coloring them according to its fears. So an angry man, strongly desirous of making out that a person has injured him, will be disposed to see signs of conscious guilt in this person's looks or words. Similarly, a lover will read fine thoughts or sentiments into the mind of his mistress under the influence of a strong wish to admire.

And what applies to the illusory interpretation of others' feelings applies to the ascription of feelings to inanimate objects. This is due not simply to the impulse to expand one's conscious existence through far-reaching resonances of sympathy, but also to a permanent or temporary disposition to attribute a certain kind of feeling to an object. Thus, the poet personifies nature in part because his emotional cravings prompt him to construct the idea of something that can be admired or worshipped. Once more, the action of a momentary feeling when actually excited is seen in the "mechanical" impulse of a man to retaliate when he strikes his foot against an object, as a chair, which clearly involves a tendency to attribute an intention to hurt to the unoffending body, and the *rationale* of which odd procedure is pretty correctly expressed in the popular phrase: "It relieves the feelings."

It is worth noting, perhaps, that these illusions of insight, like those of perception, may involve an inattention to the actual impression of the moment. To erroneously attribute a feeling to another through an excess of sympathetic eagerness is often to overlook what a perfectly dispassionate observer would see, as, for example, the immobility of the features or the signs of a deliberate effort to simulate. This inattention will, it is obvious, be greatest in the poetic attribution of life and personality to natural objects, in so far as this approximates to a complete momentary illusion. To see a dark overhang-

ing rock as a grim sombre human presence, is for the moment to view it under this aspect only, abstracting from its many obvious unlikenesses.

In the same manner, a tendency to read a particular meaning into a word may lead to the misapprehension of the word. To give an illustration: I was lately reading the fifth volume of G. H. Lewes's *Problems of Life and Mind*. In reading the first sentence of one of the sections, I again and again fell into the error of taking "The great Lagrange," for "The great Language." On glancing back I saw that the section was headed "On Language," and I at once recognized the cause of my error in the pre-existence in my mind of the representative image of the word "language."

In concluding this short account of the errors of insight, I may observe that their range is obviously much greater than that of the previously considered classes of presentative illusion. This is, indeed, involved in what has been said about the nature of the process. Insight, as we have seen, though here classed with presentative cognition, occupies a kind of border-land between immediate knowledge or intuition and inference, shading off from the one to the other. And in the very nature of the case the scope for error must be great. Even overlooking human reticence, and what is worse, human hypocrisy, the conditions of an accurate reading of others' minds are rarely realized. If, as has been remarked by a good authority, one rarely meets, even among intelligent people, with a fairly accurate observer of external things, what shall be said as to the commonly claimed power of "intuitive insight" into other people's thoughts and feelings, as though it were a process above suspicion? It is plain, indeed, on a little reflection, that, taking into account what is required in the way of large and varied experience (personal and social), a habit of careful introspection, as well as a habit of subtle discriminative attention to the external signs of mental life, and lastly, a freedom from prepossession and bias, only a very few can ever hope even to approximate to good readers of character.

And then we have to bear in mind that this large amount of error is apt to remain uncorrected. There is not, as in the case of external perception, an easy way of verification, by calling in another sense; a misapprehension, once formed, is apt to remain, and I need hardly say that errors in these matters of mutual comprehension have their palpable practical consequences. All social cohesion and co-operation rest on this comprehension, and are limited by its degree of perfection. Nay, more, all common knowledge itself, in so far as it depends on a mutual communication of impressions, ideas, and beliefs, is limited by the fact of this great liability to error in what at first seems to be one of the most certain kinds of knowledge.

In view of this depressing amount of error, our solace must be found in the reflection that this seemingly perfect instrument of intuitive insight is, in reality, like that of introspection, in process of being fashioned. Mutual comprehension has only become necessary since man entered the social state, and this, to judge by the evolutionist's measure of time, is not so long ago. A mental structure so complex and delicate requires for its development a proportionate degree of exercise, and it is not reasonable to look yet for perfect precision of action. Nevertheless, we may hope that, with the advance of social development, the faculty is continually gaining in precision and certainty. And, indeed, this hope is already assured to us in the fact that the faculty has begun to criticise itself, to distinguish between an erroneous and a true form of its operation. In fact, all that has been here said about illusions of insight has involved the assumption that intellectual culture sharpens the power and makes it less liable to err.

CHAPTER X.

ILLUSIONS OF MEMORY.

THUS far we have been dealing with Presentative Illusions, that is to say, with the errors incident to the process of what may roughly be called presentative cognition. We have now to pass to the consideration of Representative Illusion, or that kind of error which attends representative cognition in so far as it is immediate or self-sufficient, and not consciously based on other cognition. Of such immediate representative cognition, memory forms the most conspicuous and most easily recognized variety. Accordingly, I proceed to take up the subject of the Illusions of Memory.*

The mystery of memory lies in the apparent immediateness of the mind's contact with the vanished past. In "looking back" on our life, we seem to ourselves for the moment to rise above the limitations of time, to undo its work of extinction, seizing again the realities which its on-rushing stream had borne far from us. Memory is a kind of resurrection of the buried past: as we fix our retrospective glance on it, it appears to start anew into life; forms arise within our minds which, we feel sure, must faithfully represent the things that were. We do not ask for any proof of the fidelity of this dramatic representation of our past history by memory. It is seen to be a faithful imitation, just because it is felt to be a revival of the past. To seek to make the immediate

* Errors of memory have sometimes been called "fallacies," as, for example, by Dr. Carpenter (*Human Physiology*, ch. x.). While preferring the term "illusion," I would not forget to acknowledge my indebtedness to Dr. Carpenter, who first set me seriously to consider the subject of mnemonic error.

testimony of memory more sure seems absurd, since all our ways of describing and illustrating this mental operation assume that in the very act of performing it we do recover a part of our seemingly "dead selves."

To challenge the veracity of a person's memory is one of the boldest things one can do in the way of attacking deep-seated conviction. Memory is the peculiar domain of the individual. In going back in recollection to the scenes of other years he is drawing on the secret store-house of his own consciousness, with which a stranger must not intermeddle. To cast doubt on a person's memory is commonly resented as an impertinence, hardly less rude than to question his reading of his own present mental state. Even if the challenger professedly bases his challenge on the testimony of his own memory, the challenged party is hardly likely to allow the right of comparing testimonies. He can in most cases boldly assert that those who differ from him are lacking in *his* power of recollection. The past, in becoming the past, has, for most people, ceased to be a common object of reference; it has become a part of the individual's own inner self, and cannot be easily dislodged or shaken.

Yet, although people in general are naturally disposed to be very confident about matters of recollection, reflective persons are pretty sure to find out, sooner or later, that they occasionally fall into errors of memory. It is not the philosopher who first hints at the mendacity of memory, but the "plain man" who takes careful note of what really happens in the world of his personal experience. Thus, we hear persons, quite innocent of speculative doubt, qualifying an assertion made on personal recollection by the proviso, "unless my memory has played me false." And even less reflective persons, including many who pride themselves on their excellent memory, will, when sorely pressed, make a grudging admission that they may, after all, be in error. Perhaps the weakest degree of such an admission, and one which allows to the conceding party a semblance of victory is illustrated in the "last word" of one who has boldly maintained a proposition on the strength of individual recollection, but begins to recognize the instability of his position: "I either witnessed the occurrence or dreamt it." This is sufficient to prove that, with all people's boasting about the infallibility of memory, there are many who have a shrewd suspicion that some of its asseverations will not bear a very close scrutiny.

Psychology of Memory.—In order to understand the errors of memory, we must proceed, as in the case of illusions of perception, by examining a little into the nature of the normal or correct process.

An act of recollection is said by the psychologist to be purely representative in character, whereas perception is partly representative, partly presentative. To recall an object to the mind is to reconstruct the

percept in the absence of a sense-impression.*

An act of memory is obviously distinguished from one of simple imagination by the presence of a conscious reference to the past. Every recollection is an immediate reapprehension of some past object or event. However vague this reference may be, it must be there to constitute the process one of recollection.

The every-day usages of language do not at first sight seem to consistently observe this distinction. When a boy says, "I remember my lesson," he appears to be thinking of the present only, and not referring to the past. In truth, however, there is a vague reference to the fact of retaining a piece of knowledge through a given interval of time.

Again, when a man says, "I recollect your face," this means, "Your face seems familiar to me." Here again, though there is no definite reference to the past, there is a vague and indefinite one.

It is plain from this definition that recollection is involved in all recognition or identification. Merely to be aware that I have seen a person before implies a minimum exercise of memory. Yet we may roughly distinguish the two actions of perception and recollection in the process of recognition. The mere recognition of an object does not imply the presence of a distinct representative or mnemonic image. In point of fact, in so far as recognition is assimilation, it cannot be said to imply a *distinct* act of memory at all. It is only when similarity is perceived amid difference, only when the accompaniments or surroundings of the object as previously seen, differencing it from the object as now seen, are brought up to the mind that we may be said distinctly to recall the past. And our state of mind in recognizing an object or person is commonly an alternation between these two acts of separating the mnemonic image from the percept and so recalling or recollecting the past, and fusing the image and the percept in what is specifically marked off as recognition.†

Although I have spoken of memory as a reinstatement in representative form of external experience, the term must be understood to include every revival of a past experience, whether external or internal, which is recognized as a revival. In a general way, the recallings of our internal feelings take place in close connection with the recollection of external circumstances or events, and so they may be regarded as largely conditioned by the laws of this second kind of reproduction.

* From this it would appear to follow that, so far as a percept is representative, recollection must be re-representative.

† The relation of memory to recognition is very well discussed by M. Delbœuf, in connection with a definition of memory given by Descartes. (See the article "Le Sommeil et les Rêves," in the *Revue Philosophique*, April, 1889, p. 428, et seq.)

The old conceptions of mind, which regarded every mental phenomenon as a manifestation of an occult spiritual substance, naturally led to the supposition that an act of recollection involves the continued, unbroken existence of the reproductive or mnemonic image in the hidden regions of the mind. To recollect is, according to this view, to draw the image out of the dark vaults of unconscious mind into the upper chamber of illumined consciousness.

Modern psychology recognizes no such pigeon-hole apparatus in unconscious mind. On the purely psychical side, memory is nothing but an occasional reappearance of a past mental experience. And the sole mental conditions of this reappearance are to be found in the circumstances of the moment of the original experience and in those of the moment of the reappearance.

Among these are to be specially noted, first of all, the degree of impressiveness of the original experience, that is to say, the amount of interest it awakened and of attention it excited. The more impressive any experience, the greater the chances of its subsequent revival. Moreover, the absence of impressiveness in the original experience may be made good either by a repetition of the actual experience or in the case of non-recurring experiences, by the fact of previous mnemonic revivals.

In the second place, the pre-existing mental states at the time of revival are essential conditions. It is now known that every recollection is determined by some link of association, that every mnemonic image presents itself in consciousness only when it has been preceded by some other mental state, presentative or representative, which is related to the image. This relation may be one of contiguity, that is to say, the original experiences may have occurred at the same time or in close succession; or one of similarity (partial and not amounting to identity), as where the sight of one place or person recalls that of another place or person. Finally, it is to be observed that recollection is often an act, in the full sense of that term, involving an effort of voluntary attention at the moment of revival.

Modern physiology has done much toward helping us to understand the nervous conditions of memory. The biologist regards memory as a special phase of a universal property of organic structure, namely, modifiability by the exercise of function, or the survival after any particular kind of activity of a disposition to act again in that particular way. The revival of a mental impression in the weaker form of an image is thus, on its physical side, due in part to this remaining functional disposition in the central nervous tracts concerned. And so, while on the psychical or subjective side we are unable to find anything permanent in memory, on the physical or objective side we do find such a permanent substratum.

With respect to the special conditions of

mnemonic revival at any time, physiology is less explicit. In a general way, it informs us that such a reinstatement of the past is determined by the existence of certain connections between the nervous structures concerned in the reviving and revived mental elements. Thus, it is said that when the sound of a name calls up in the mind a visual image of a person seen some time since, it is because connections have been formed between particular regions and modes of activity of the auditory and the visual centers. And it is supposed that the existence of such connections is somehow due to the fact that the two regions acted simultaneously in the first instance, when the sight of the person was accompanied by the hearing of his name. In other words, the centers, as a whole, will tend to act at any future moment in the same complex way in which they have acted in past moments.

All this is valuable hypothesis so far as it goes, though it plainly leaves much unaccounted for. As to why this reinstatement of a total cerebral pulsation in consequence of the re-excitation of a portion of the same should be accompanied by the specific mode of consciousness which we call recollection of something past, it is perhaps unreasonable to ask of physiology any sort of explanation.*

Thus far as to the general or essential characteristics of memory on its mental and its bodily side. But what we commonly mean by memory is, on its psychical side at least, much more than this. We do not say that we properly recollect a thing unless we are able to refer it to some more or less clearly defined region of the past, and to localize it in the succession of experiences making up our mental image of the past. In other words, though we may speak of an imperfect kind of recollection where this definite reference is wanting, we mean by a perfect form of memory something which includes this reference.

Without entering just now upon a full analysis of what this reference to a particular region of the past means, I may observe that it takes place by help of an habitual retracing of the past, or certain portions of it, that is to say, a regressive movement of the imagination along the lines of our actual experience. Setting out from the present moment, I can move regressively to the preceding state of consciousness, to the penultimate, and so on. The fact that each distinct mental state is continuous with the preceding and the succeeding, and in a certain sense overlaps these, makes any portion of our ex-

* A very interesting account of the most recent physiological theory of memory is to be found in a series of articles, bearing the title, "La Memoire comme fait biologique," published in the *Revue Philosophique*, from the pen of the editor, M. Th. Ribot. (See especially the *Revue* of May, 1880, p. 516, *et seq.*) M. Ribot speaks of the modification of particular nerve-elements as "the static base" of memory, and of the formation of nerve-connections by means of which the modified element may be re-excited to activity as "the dynamic base of memory" (p. 535).

perience essentially a succession of states of consciousness, involving some rudimentary idea of time. And thus, whether I anticipate a future event or recall a past one, my imagination, setting out from the present moment, constructs a sequence of experiences of which the one particularly dwelt on is the other term or boundary. And our idea of the position of this last in time, like that of an object in space, is one of a relation to our present position, and is determined by the length of the sequence of experiences thus run over by the imagination.* It may be added that since the imagination can much more easily follow the actual order of experience than conceive it as reversed, the retrospective act of memory naturally tends to complete itself by a return movement forward from the remembered event to the present moment.

In practice this detailed retracing of successive moments of mental life is confined to very recent experiences. If I try to localize in time a remote event, I am content with placing it in relation to a series of prominent events or landmarks which serves me as a rough scheme of the past. The formation of such a mnemonic framework is largely due to the needs of social converse, which proceeds by help of a common standard of reference. This standard is supplied by those objective, that is to say, commonly experienced regularities of succession which constitute the natural and artificial divisions of the years, seasons, months, weeks, etc. The habit of recurring to these fixed divisional points of the past renders a return of imagination to any one of them more and more easy. A man has a definite idea of "a year ago" which the child wants, just because he has had so frequently to execute that vague regressive movement by which the idea arises. And though, as our actual point in time moves forward, the relative position of any given landmark is continually changing, the change easily adapts itself to that scheme of time-divisions which holds good for any present point.

Few of our recollections of remote events involve a definite reference to this system of landmarks. The recollections of early life are, in the case of most people, so far as they depend on individual memory, very vaguely and imperfectly localized. And many recent experiences which are said to be half forgotten, are not referred to any clearly assignable position in time. One may say that in average cases definite localization characterizes only such supremely interesting personal experiences as spontaneously recur again and again to the mind. For the rest it is confined to those facts and events of general interest to which our social habits lead us repeatedly to go back.†

The consciousness of personal identity is said to be bound up with memory. That is to say, I am conscious of a continuous permanent self under all the varying surface-play of the stream of consciousness, just because I can, by an act of recollection, bring together any two portions of this stream of experience, and so recognize the unbroken continuity of the whole. If this is so, it would seem to follow from the very fragmentary character of our recollections that our sense of identity is very incomplete. As we shall see presently, there is good reason to look upon this consciousness of continuous personal existence as resting only in part on memory, and mainly on our independently formed representation of what has happened in the numberless and often huge lacunæ of the past left by memory.

Having thus a rough idea of the mechanism of memory to guide us, we may be able to investigate the illusions incident to the process.

Illusions of Memory.—By an illusion of memory we are to understand a false recollection or a wrong reference of an idea to some region of the past. It might, perhaps, be roughly described as a wrong interpretation of a special kind of mental image, namely, what I have called a mnemonic image.

Mnemonic illusion is thus distinct from mere forgetfulness or imperfect memory. To forget or be doubtful about a past event is one thing; to seem to ourselves to remember it when we afterwards find that the fact was otherwise than we represented it in the apparent act of recollection is another thing. Indistinctness of recollection, or the decay of memory, is, as we shall soon see, an important co-operant condition of mnemonic illusion, but does not constitute it, any more than haziness of vision or disease of the visual organ, though highly favorable to optical illusion, can be said to constitute it.

We may conveniently proceed in our detailed examination of illusions of memory, by distinguishing between three facts which appear to be involved in every complete and accurate process of recollection. When I distinctly recall an event, I am immediately sure of three things: (1) that something did really happen to me; (2) that it happened in the way I now think; and (3) that it happened when it appears to have happened. I cannot be said to recall a past event unless I feel sure on each of these points. Thus, to be able to say that an event happened at a particular date, and yet unable to describe how it happened, means that I have a very incomplete recollection. The same is true when I can recall an event pretty distinctly, but fail to assign it its proper date. Thus being

* What constitutes the difference between such a progressive and a retrogressive movement is a point that will be considered by and by.

† It is not easy to say how far exceptional conditions may serve to reinstate the seemingly for-

gotten past. Yet the experiences of dreamers and of those who have been recalled to consciousness after partial drowning, whatever they may prove with respect to the revivability of remote experiences, do not lead us to imagine that the range of our definitely localizing memory is a wide one.

so, it follows that there are three possible openings, and only three, by which errors of memory may creep in. And, as a matter of fact, each of these openings will be found to let in one class of mnemonic illusion. Thus we have (1) false recollections, to which there correspond no real events of personal history; (2) others which misrepresent the manner of happening of the events; and (3) others which falsify the date of the events remembered.

It is obvious, from a mere glance at this threefold classification, that illusions of memory closely correspond to visual illusions. Thus, class (1) may be likened to the optical illusions known as subjective sensations of light, or ocular spectra. Here, we can prove that there is nothing actually seen in the field of vision, and that the semblance of a visible object arises from quite another source than that of ordinary external light-stimulation, and by what may be called an accident. Similarly, in the case of the first class of mnemonic illusions, we shall find that there is nothing actually recollected, but that the mnemonic spectra or phantoms of recollected objects can be accounted for in quite another way. Such illusions come nearest to hallucinations in the region of memory.

Again, class (2) has its visual analogue in those optical illusions which depend on effects of haziness and of the action of refracting media interposed between the eye and the object; in which cases, though there is some real thing corresponding to the perception, this is seen in a highly defective, distorted, and misleading form. In like manner, we can say that the images of memory often get obscured, distorted, and otherwise altered when they have receded into the dim distance, and are looked back upon through a long space of intervening mental experience. Finally, class (3) has its visual counterpart in erroneous perceptions of distance, as when, for example, owing to the clearness of the mountain atmosphere and the absence of intervening objects, the side of the Jungfrau looks to the inexperienced tourist at Wengernalp hardly further than a stone's throw. It will be found that when our memory falsifies the date of an event, the error arises much in the same way as a visual miscalculation of distance.

This threefold division of illusions of memory is plainly a rather superficial one, and not based on distinctions of psychological nature or origin. In order to make our treatment of the subject scientific as well as popular, it will be necessary to introduce the distinction between the passive and the active factor under each head. It will be found, I think, without forcing the analogy too far, that here, as in the case of the illusions of perception and introspection, error is attributable now to misleading suggestion on the part of the mental content of the moment, now to a process of incorporating into this content a mental image not suggested by it, but existing independently.

If we are to proceed as we did in the case of the illusions of sense, and take up the lower stages of error first of all, we shall need to begin with the third class of errors, those of localization in time, or of what may be called mnemonic perspective. It has been already observed that the definite localization of a mnemonic image is only an occasional accompaniment of what is loosely called recollection. Hence, error as to the position of an event in the past chain of events would seem to involve the least degree of violation of the confidence which we are wont to repose in memory. After this, we may proceed to the discussion of the second class, which I may call distortions of the mnemonic picture. And, finally, we may deal with the most signal and palpable variety of error of memory, namely, the illusions which I have called mnemonic spectra.

Illusions of Perspective: A. Definite Localization.—In order to understand these errors of mnemonic perspective, we shall have to inquire more closely than we have yet done into the circumstances which customarily determine our idea of the degree of propinquity or of remoteness of a past event. And first of all, we will take the case of a complete act of recollection when the mind is able to travel back along an uninterrupted series of experiences to a definitely apprehended point. Here there would seem, at first sight, to be no room for error, since this movement of retrospective imagination may be said to involve a direct measurement of the distance, just as a sweep of the eye over the ground between a spectator and an object affords a direct measurement of the intervening space.

Modern science, however, tells us that this mode of measurement is by no means the simple and accurate process which it at first seems to be. In point of fact, there is something like a constant error in all such retrospective measurement. Vierordt has proved experimentally, by making a person try to reproduce the varying time-intervals between the strokes of the pendulum of a metronome, that when the interval is a very small one, we uniformly tend to exaggerate it in retrospect; when a large one, to regard it, on the contrary, as less than it actually was.*

A mere act of reflection will convince any one that when he tries to conceive a very small interval, say a quarter of a second, he is likely to make it too great. On the other hand, when we try to conceive a year, we do not fully grasp the whole extent of the duration. This is proved by the fact that merely by spending more time over the attempt, and so recalling a larger number of the details of the period, we very considerably enlarge our first estimate of the duration. And this leads to great discrepancies in the appreciation of the relative magnitudes of past sections of time. Thus, as Wundt observes, though in

* *Der Zeitsinn nach Versuchen*, p. 36, et seq.

retrospect both a month and a year seem too short, the latter is relatively much more shortened than the former.*

The cause of this constant error in the mode of reproducing durations seems to be connected with the very nature of the reproductive act. It must be borne in mind that this act is itself, like the experience which it represents, a mental process, occupying time, and that consequently it may very possibly reflect its time-character on the resulting judgment. Thus, since it certainly takes more than a quarter of a second to pass in imagination from one impression to another, it may be that we tend to confound this duration with that which we try to represent. Similarly, the fact that in the act of reproductive imagination we under-estimate a longer interval between two impressions, say those of the slow beats of a colliery engine, may be accounted for by the supposition that the imagination tends to pass from the one impression to the succeeding one too rapidly.†

The gross misappreciation of duration of long periods of time, while it may illustrate the principle just touched on, clearly involves the effect of other and more powerful influences. A mere glance at what is in our mind when we recall such a period as a month or a year, shows that there is no clear concrete representation at all. Time, it has been often said, is known only so far as filled with concrete contents or conscious experiences, and a perfect imagination of any particular period of past time would involve a retracing of all the successive experiences which have gone to make up this section of our life. This, I need not say, never happens, both because, on the one hand, memory does not allow of a complete reproduction of any segment of our experience, and because, on the other hand, such an imaginative reproduction, even if possible, would clearly occupy as much time as the experience itself.‡

When I call up an image of the year just closing, what really happens is a rapid movement of imagination over a series of prominent events, among which the succession of seasons probably occupies the foremost place, serving, as I have remarked, as a framework for my retrospective picture. Each of the events which I thus run over is really a long succession of shorter experiences, which, however, I do not separately represent to myself. My imaginative repro-

duction of such a period is thus essentially a greatly abbreviated and symbolic mode of representation. It by no means corresponds to the visual imagination of a large magnitude, say that of the length of sea horizon visible at any one moment, which is complete in an instant, and quite independent of a successive imagination of its parts or details. It is essentially a very fragmentary and defective numerical idea, in which, moreover, the real quantitative value of the units is altogether lost sight of.

Now, it seems to follow from this that there is something illusory in all our recallings of long periods of the past. It is by no means strictly correct to say that memory ever reinstates the past. It is more true to say that we see the past in retrospect as greatly foreshortened. Yet even this is hardly an accurate account of what takes place, since, when we look at an object foreshortened in perspective, we see enough to enable us imaginatively to reconstruct the actual size of the object, whereas in the case of time-perspective no such reconstruction is even indirectly possible.

It is to be added that this constant error in time-reproduction is greater in the case of remote periods than of near ones of the same length. Thus, the retrospective estimate of a duration far removed from the present, say the length of time passed at a particular school, is much more superficial and fragmentary than that of a recent corresponding period. So that the time-vista of the past is seen to answer pretty closely to a visible perspective in which the amount of apparent error due to foreshortening increases with the distance.

In practice, however, this defect in the imagination of duration leads to no error. Although, as a concrete image answering to some definite succession of experiences a year is a gross misrepresentation, as a general concept implying a collection of a certain number of similar successions of experience it is sufficiently exact. That is to say, though we cannot imagine the *absolute* duration of any such cycle of experience, we can, by the simple device of conceiving certain durations as multiples of others, perfectly well compare different periods of times, and so appreciate their *relative* magnitudes.

Leaving, then, this constant error in time-appreciation, we will pass to the variable and more palpable errors in the retrospective measurement of time. Each person's experience will have told him that in estimating the distance of a past event by a mere retrospective sense of duration, he is liable to extraordinary fluctuations of judgment. Sometimes when the clock strikes we are surprised at the rapidity of the hour. At other times the timepiece seems rather to have lagged behind its usual pace. And what is true of a short interval is still more true of longer intervals, as months and years. The understanding of these fluctuations will be promoted by our brief glance at the con-

* *Physiologische Psychologie*, p. 782.

† Wundt refers these errors to variations in the state of pre-adjustment of the attention to impressions and representations, according as they succeed one another slowly or rapidly. There is little doubt that the effects of the state of tension of the apparatus of attention are involved here, though I am disposed to think that Wundt makes too much of this circumstance. (See *Physiologische Psychologie*, pp. 782, 783. I have given a fuller account of Wundt's theory in *Mind*, No. i.)

‡ Strictly speaking, it would occupy more time, since the effort of recalling each successive link in the chain would involve a greater interval between any two images than that between the corresponding experiences.

stant errors in retrospective time-appreciation.

And here it is necessary to distinguish between the sense of duration which we have during any period, and the retrospective sense which survives the period, for these do not necessarily agree. The former rests mainly on our prospective sense of time, whereas the latter must be altogether retrospective.*

Our estimate of time as it passes is commonly said to depend on the amount of consciousness which we are giving to the fact of its transition. Thus, when the mind is unoccupied and suffering from *ennui*, we feel time to move sluggishly. On the other hand, interesting employment, by diverting the thoughts from time, makes it appear to move at a more rapid pace. This fact is shown in the common expressions which we employ, such as "to kill time," and the German *Langweile*. Similarly, it is said that when we are eagerly anticipating an event, as the arrival of a friend, the mere fact of dwelling on the interval makes it appear to swell out.†

This view is correct in the main, and is seen, indeed, to follow from the great psychological principle that what we attend to exists for us more, has more reality, and so naturally seems greater than what we do not attend to. At the same time, this principle must be supplemented by another consideration. Suppose that I am very desirous that time should *not* pass quickly. If, for example, I am enjoying myself or indulging in idleness, and know that I have to be off to keep a not very agreeable engagement in a quarter of an hour, time will seem to pass too rapidly; and this not because my thoughts are diverted from the fact of its transition, for, on the contrary, they are reverting to it more than they usually do, but because my wish to lengthen the interval leads me to represent the unwelcome moment as further off than it actually is, in other words, to construct an ideal representation of the period in contrast with which the real duration looks miserably short.

Our estimate of duration, when it is over, depends less on this circumstance of having attended to its transition than on other considerations. Wundt, indeed, seems to think that the feeling accompanying the actual flow of time has no effect on the surviving subjective appreciation; but this must surely be an error, since our mental image of any period is determined by the character of its contents. Wundt says that when once a tedious

* I need hardly say that there is no sharp distinction between these two modes of subjective appreciation. Our estimate of an interval as it passes is really made up of a number of renewed anticipations and recollections of the successive experiences. Yet we can say broadly that this is a prospective estimate, while that which is formed when the period has quite expired must be altogether retrospective.

† See an interesting paper on "Consciousness of Time," by Mr. G. J. Romanes, in *Mind* (July, 1878).

waiting is over, it looks short because we instantly forget the feeling of tedium. My self-observation, as well as the interrogation of others, has satisfied me, on the contrary, that this feeling distinctly colors the retrospective appreciation. Thus, when waiting at a railway station for a belated train, I am distinctly aware that each quarter of an hour looks long, not only as it passes, but when it is over. In fact, I am disposed to express my feeling as one of disappointment that only so short an interval has passed since I last looked at my watch.

Nevertheless, I am ready to allow that, though a feeling of tedium, or the contrary feeling of irritation at the rapidity of time, will linger for an appreciable interval and color the retrospective estimate of time, this backward view is chiefly determined by other considerations. As Wundt remarks, we have no sense of time's slowness during sleep, yet on waking we imagine that we have been dreaming for an immensely long period. This retrospective appreciation is determined by the number and the degree or intensity of the experiences, and, what comes very much to the same thing, by the amount of unlikeness, freshness, and discontinuity characterizing these experiences.

Time, as I have already hinted, is known under the form of a succession of different conscious experiences. Unbroken uniformity would give us no sense of time, because it would give us no conscious experience at all. Strictly speaking, there is no such thing as a perfectly uniform mental state extending through an appreciable duration. In looking at one and the same object, even in listening to one and the same tone, I am in no two successive fractions of a second in exactly the same state of mind. Slight alterations in the strength of the sensation,* in the degree or direction of attention, and in the composition of that penumbra of vague images which it calls up, occur at every distinguishable fraction of time.

This being so, it would seem to follow that the greater the number of clearly marked changes, and the more impressive and exciting these transitions, the fuller will be our sense of time. And this is borne out by individual reflection. When striking and deeply interesting events follow one another very rapidly, as when we are traveling, duration appears to swell out.

It is possible that such a succession of stirring experiences may beget a vague consciousness of time at each successive moment, and apart from retrospect, simply by force of the change. In other words, without our distinctly attending to time, a series of novel impressions might, by giving us the consciousness of change, make us dimly aware of the numerical richness of our experiences. But, however this be, there is no doubt that, in

* It is well known that there is, from the first, a gradual falling off in the strength of a sensation of light when a moderately bright object is looked at.

glancing back on such a succession of exciting transitions of mental condition, time appears to expand enormously, just as it does in looking back on our dream-experience, or that rapid series of intensified feelings which, according to De Quincey and others, is produced by certain narcotics.

The reason of this is plain. Such a type of successive experience offers to the retrospective imagination a large number of distinguishable points, and since this mode of estimating time depends, as we have seen, on the extent of the process of filling in, time will necessarily appear long in this case. On the other hand, when we have been engaged in very ordinary pursuits, in which few deeply interesting or exciting events have impressed themselves on memory, our retrospective picture will necessarily be very much of a blank, and consequently the duration of the period will seem to be short.

I observed that this retrospective appreciation of time depended on the degree of connection between the successive experiences. This condition is very much the same as the other just given, namely, the degree of uniformity of the experiences, since the more closely the successive stages of the experience are connected—as when, for example, we are going through our daily routine of work—the more quiet and unexciting will be the transition from each stage to its succeeding one. And on the other hand, all novelty of impression and exciting transition of experience clearly involves a want of connection. Wundt thinks the retrospective estimate of a connected series of experiences, such as those of our daily round of occupations, is defective just because the effort of attention, which precedes even an imaginative reproduction of an impression, so quickly accommodates itself in this case to each of the successive steps, whereas, when the experiences to be recalled are disconnected, the effort requires more time. In this way, the estimate of a past duration would be colored by the sense of time accompanying the reproductive process itself. This may very likely be the case, yet I should be disposed to attach most importance to the number of distinguishable items of experience recalled.

Our representation of the position of a given event in the past is, as I have tried to show, determined by the movement of imagination in going back to it from the present. And this is the same thing as to say that it depends on our retrospective sense of the intervening space. That is to say, the sense of distance in time, as in space, is the recognition of a term to a movement. And just as the distance of an object will seem greater when there are many intervening objects affording points of measurement, than when there are none (as on the uniform surface of the sea), so the distance of an event will vary with the number of recognized intervening points.

The appreciation of the distance of an event in time does not, however, wholly de-

pend on the character of this movement of imagination. Just as the apparent distance of a visible object depends *inter alia* on the distinctness of the retinal impression, so the apparent temporal remoteness of a past event depends in part on the degree of intensity and clearness of the mnemonic image. This is seen even in the case of those images which we are able distinctly to localize in the time-perspective. For a series of exciting experiences intervening between the present and a past event appears not only *directly* to add to our sense of distance by constituting an apparently long interval, but *indirectly* to add to it by giving an unusual degree of faintness to the recalled image. An event preceding some unusually stirring series of experiences gets thrust out of consciousness by the very engrossing nature of the new experiences, and so tends to grow more faint and ghost-like than it would otherwise have done.

The full force of this circumstance is best seen in the fact that a very recent event, bringing with it a deep mental shock and a rapid stirring of wide tracts of feeling and thought, may get to look old in a marvelously short space of time. An announcement of the loss of a dear friend, when sudden and deeply agitating, will seem remote even after an hour of such intense emotional experience. And the same twofold consideration probably explains the well-known fact that a year seems much shorter to the adult than to the child. The novel and comparatively exciting impressions of childhood tend to fill out time in retrospect, and also to throw back remote events into a dimly discernible region.

Now, this same circumstance, the degree of vividness or of faintness of the mnemonic image, is that which determines our idea of distance when the character of the intervening experiences produces no appreciable effect.* This is most strikingly illustrated in those imperfect kinds of recollection in which we are unable to definitely localize the mnemonic image. To the consideration of these we will now turn.

B. Indefinite Localization.—Speaking in a general manner, we may say that the vividness of an image of memory decreases in proportion as the distance of the event increases. And this is the rule which we unconsciously apply in determining distance in time. Nevertheless, this rule gives us by no means an infallible criterion of distance. The very fact that different people so often dispute about the dates and the order of past events experienced in common, shows pretty plainly that images of the same age tend to arise in the mind with very unequal degrees of vividness.

Sometimes pictures of very remote incidents may suddenly present themselves to our minds with a singular degree of bright-

* Cf. Hartley, *Observations on Man*, Part I, ch. iii. sec. 4 (fifth edit., p. 397).

ness and force. And when this is the case, there is a disposition to think of them as near. If the relations of the event to other events preceding and succeeding it are not remembered, this momentary illusion will persist. We have all heard persons exclaim, "It seems only yesterday," under the sense of nearness which accompanies a recollection of a remote event when vividly excited. The most familiar instance of such lively reproduction is the feeling which we experience on revisiting the scene of some memorable event. At such a time the past may return with something of the insistence of a present perceived reality. In passing from place to place, in talking with others, and in reading, we are liable to the sudden return by hidden paths of association of images of incidents that had long seemed forgotten, and when they thus start up fresh and vigorous, away from their proper surroundings, they invariably induce a feeling of the propinquity of the events.

In many cases we cannot say why these particular images, long buried in oblivion, should thus suddenly regain so much vitality. There seems, indeed, to be almost as much that is arbitrary and capricious in the selection by memory of its vivid images as in the selection of its images as a whole; and, this being so, it is plain that we are greatly exposed to the risk of illusion from this source.

There is an opposite effect in the case of recent occurrences that, for some reason or another, have left but a faint impression on the memory; though this fact is not, perhaps, so familiar as the other. I met a friend, we will suppose, a few days since at my club, and we exchanged a few words. My mind was somewhat preoccupied at the time, and the occurrence did not stamp itself on my recollection. To-day I meet him again, and he reminds me of a promise I made him at the time. His reminder suffices to restore a dim image of the incident, but the fact of its dimness leads to the illusion that it really happened much longer ago, and it is only on my friend's strong assurances, and on reasoning from other data that it must have occurred the day he mentions, that I am able to dismiss the illusion.

The most striking examples of the illusory effect of mere vividness, involving a complete detachment of the event from the prominent landmarks of the past, are afforded by public events which lie outside the narrower circle of our personal life, and which do not in the natural course of things become linked to any definitely localized points in the field of memory. These events may be very stirring and engrossing for the time, but in many cases they pass out of the mind just as suddenly as they entered it. We have no occasion to revert to them, and if by chance we are afterwards reminded of them, they are pretty certain to look too near, just because the fact of their having greatly interested us has served to render their images particularly vivid.

A curious instance of this illusory effect was supplied not long since by the case of the ex-detectives, the expiration of whose term of punishment (three years) served as an occasion for the newspapers to recall the event of their trial and conviction. The news that three years had elapsed since this well-remembered occurrence proved very startling to myself, and to a number of my friends, all of us agreeing that the event did not seem to be at more than a third of its real distance. More than one newspaper commented on the apparent rapidity of the time, and this shows pretty plainly that there was some cause at work, such as I have suggested, producing a common illusion.

I have treated of these illusions connected with the estimate of past time and the dating of past events as passive illusions, not involving any active predisposition on the part of the imagination. At the same time, it is possible that error in these matters may occasionally depend on a present condition of the feelings and the imagination. It seems plain that since the apparent degree of remoteness of an event not distinctly localized in the past varies inversely as the degree of vividness of the mnemonic image, any conscious concentration of mind on a recollection will tend to bring it too near. In this way, then, an illusory propinquity may be given to a recalled event through a mere desire to dwell on it, or even a capricious wish to deceive one's self.

When, for example, old friends come together and talk over the days of yore, there is a gradual reinstatement of seemingly lost experiences, which often partake of the character of a semi-voluntary process of self-delusion. Through the cumulative effect of mutual reminder, incident after incident returns, adding something to the whole picture till it acquires a degree of completeness, coherence, and vividness that render it hardly distinguishable from a very recent experience. The process is like looking at a distant object through a field-glass. Mistiness disappears, fresh details come into view, till we seem to ourselves to be almost within reach of the object.

Where the mind habitually goes back to some painful circumstance under the impulse of a morbid disposition to nurse regret, this momentary illusion may become recurring, and amount to a partial confusion of the near and the remote in our experience. An injury long brooded on seems at length a thing that continually moves forward as we move; it always presents itself to our memories as a very recent event. In states of insanity brought on by some great shock, we see this morbid tendency to resuscitate the dead past fully developed, and remote events and circumstances becoming confused with present ones.

On the other hand, in more healthy states of mind there presents itself an exactly opposite tendency, namely, an impulse of the will to banish whatever when recalled gives pain

to the furthest conceivable regions of the past. Thus, when we have lost something we cherished dearly, and the recollection of it brings fruitless longing, we instinctively seek to expel the recollection from our minds. The very feeling that what has been can never again be, seems to induce this idea of a vast remoteness of the vanished reality. When, moreover, the lost object was fitted to call forth the emotion of reverence, the impulse to magnify the remoteness of the loss may not improbably be reinforced by the circumstance that everything belonging to the distant past is fitted on that account to excite a feeling akin to reverence. So, again, any rupture in our mental development may lead us to exaggerate the distance of some past portion of our experience. When we have broken with our former selves, either in the way of worsening or bettering, we tend to project these further into the past.

It is only when the string of the recollection is removed, when, for example, the calling up of the image of a lost friend is no longer accompanied with the bitterness of futile longing, that a healthy mind ventures to nourish recollections of such remote events and to view these as part of its recent experiences. In this case the mnemonic image becomes transformed into a kind of present emotional possession, an element of that idealized and sublimated portion of our experience with which all imaginative persons fill up the emptiness of their actual lives, and to which the poet is wont to give an objective embodiment in his verse.

Distortions of Memory.—It is now time to pass to the second group of illusions of memory, which, according to the analogy of visual errors, may be called atmospheric illusions. Here the degree of error is greater than in the case of illusions of time-perspective, since the very nature of the events or circumstances is misconceived. We do not recall the event as it happened, but see it in part only, and obscured, or bent and distorted as by a process of refraction. Indeed, this transformation of the past does closely correspond with the transformation of a visible object effected by intervening media. Our minds are such refracting media, and the past appears to us not as it actually was when it was close to us, but in numerous ways altered and disguised by the intervening spaces of our conscious experience.

To begin with, what we call recollection is uniformly a process of softening the reality. When we appear to ourselves to realize events of the remote past, it is plain that our representation in a general way falls below the reality: the vividness, the intensity of our impressions disappears. More particularly, so far as our experiences are emotional, they tend thus to become toned down by the mere lapse of time and the imperfections of our reproductive power. That which we seem to see in the act of recollection is thus very different from the reality.

Not only is there this general deficiency in

mnemonic representation, there are special deficiencies due to the fact of obsolescence. Our memories restore us only fragments of our past life. And just as objects seen imperfectly at a great distance may assume a shape quite unlike their real one, so an inadequate representation of a past event by memory often amounts to misrepresentation. When revisiting a place that we have not seen for many years, we are apt to find that our recollection of it consisted only of some insignificant details, which arranged themselves in our minds into something oddly unlike the actual scene. So, too, some accidental accompaniment of an incident in early life is preserved, as though it were the main feature, serving to give quite a false coloring to the whole occurrence.

It seems quite impossible to account for these particular survivals, they appear to be so capricious. When a little time has elapsed after an event, and the attendant circumstances fade away from memory, it is often difficult to say why we were impressed with it as we afterwards prove to have been. It is no doubt possible to see that many of the recollections of our childhood owe their vividness to the fact of the exceptional character of the events; but this cannot always be recognized. Some of them seem to our mature minds very oddly selected, although no doubt there are in every case good reasons, if we could only discover them, why those particular incidents rather than any others should have been retained.

The liability to error resulting from mere obsolescence and the arbitrary selection of mental images is seen most plainly, perhaps, in our subsequent representation and estimate of whole periods of early life. Our idea of any stage of our past history, as early childhood, or school-days, is built up out of a few fragmentary intellectual relics which cannot be certainly known to answer to the most important and predominant experiences of the time. When, for example, we try to decide whether our school-days were our happiest days, as is so often alleged, it is obvious that we are liable to fall into illusion through the inadequacy of memory to preserve characteristic or typical features, and none but these. We cannot easily recall the ordinary every-day level of feeling of a distant period of life, but rather think of exceptional moments of rejoicing or depression. The ordinary man's idea of the emotional experience of his school-days is probably built up out of a few scrappy recollections of extraordinary and exciting events, such as unexpected holidays, success in the winning of prizes, famous "rows" with the masters, and so on.

Besides the impossibility of getting at the average and prevailing mental tone of a distant section of life, there is a special difficulty in determining the degree of happiness of the past, arising from the fact that our memory for pleasures and for pains may not be equally good. Most people, perhaps, can

recall the enjoyments of the past much more vividly than the sufferings. On the other hand, there seem to be some who find the retention of the latter the easier of the two. This fact should not be forgotten in reading the narrative of early hardships which some recent autobiographies have given us.

Not only does our idea of the past become inexact by the mere decay and disappearance of essential features, it becomes positively incorrect through the gradual incorporation of elements that do not properly belong to it. Sometimes it is easy to see how these extraneous ideas get imported into our mental representation of a past event. Suppose, for example, that a man has lost a valuable scarf-pin. His wife suggests that a particular servant, whose reputation does not stand too high, has stolen it. When he afterward recalls the loss, the chances are that he will confuse the fact with the conjecture attached to it, and say he remembers that this particular servant did steal the pin. Thus, the past activity of imagination serves to corrupt and partially falsify recollections that have a genuine basis of fact.

It is evident that this class of mnemonic illusions approximates in character to illusions of perception. When the imagination supplies the interpretation at the very time, and the mind reads this into the perceived object, the error is one of perception. When the addition is made afterward, on reflecting upon the perception, the error is one of memory. The "fallacies of testimony" which depend on an adulteration of pure observation with inference and conjecture, as, for example, the inaccurate and wild statements of people respecting their experiences at spiritualist stances, while they illustrate the curious blending of both kinds of error, are probably much oftener illusions of memory than of perception.*

Although in many cases we can account to ourselves for this confusion of fact and imagination, in other cases it is difficult to see any close relation between the fact remembered and the foreign element imported into it. An idea of memory seems sometimes to lose its proper moorings, so to speak; to drift about helplessly among other ideas, and finally, by chance, to hook itself on to one of these, as though it naturally belonged to it. Anybody who has had an opportunity of carefully testing the truthfulness of his recollection of some remote event in early life will have found how oddly extraneous elements become incorporated into the memorial picture. Incidents get put into wrong places, the wrong persons are introduced into a scene, and so on. Here again we may illustrate the mnemonic illusion by a visual one. When a tree standing before or behind a house and projecting above or to the side of it is not sharply distinguished from the latter, it may serve to give it a very odd appearance.

* See Dr. Carpenter's *Mental Physiology*, fourth edit., p. 456.

These confusions of the mental image may arise even when only a short interval has elapsed. In the case of many of the fleeting impressions that are only half recollected, this kind of error is very easy. Thus, for example, I may have lent a book to a friend last week. I really remember the act of lending it, but have forgotten the person. But I am not aware of this. The picture of memory has unknowingly to myself been filled up by this unconscious process of shifting and rearrangement, and the idea of another person has by some odd accident got substituted for that of the real borrower. If we could go deeply enough into the matter, we should, of course, be able to explain why this particular confusion arose. We might find, for example, that the two persons were associated in my mind by a link of resemblance, or that I had dealings with the other person about the same time. Similarly, when we manage to join an event to a wrong place, we may find that it is because we heard of the occurrence when staying at the particular locality, or in some other way had the image of the place closely associated in our minds with the event. But often we are wholly unable to explain the displacement.

So far I have been speaking of the passive processes by which the past comes to wear a new face to our imaginations. In these our present habits of feeling and thinking take no part; all is the work of the past, of the decay of memory, and the gradual confusion of images. This process of disorganization may be likened to the action of damp on some old manuscript, obliterating some parts, altering the appearance of others, and even dislocating certain portions. Besides this passive process of transformation, there is a more active one in which our present minds co-operate. In memory, as in perception and introspection, there is a process of preparation or readjustment of mind, and here will be found room for what I had called active error. This may be illustrated by the operation of "interpreting" an old manuscript which has got partially obliterated, or of "restoring" a faded picture; in each of which operations error will be pretty sure to creep in through an importation of the restorer's own ideas into the relic of the past.

Just as when distant objects are seen mistily our imaginations come into play, leading us to fancy that we see something completely and distinctly, so when the images of memory become dim, our present imagination helps to restore them, putting a new patch into the old garment. If only there is some relic of the past event preserved, a bare suggestion of the way in which it may have happened will often suffice to produce the conviction that it actually did happen in this way. The suggestions that naturally arise in our minds at such times will bear the stamp of our present modes of experience and habits of thought. Hence, in trying to reconstruct the remote past, we are constantly in danger

of importing our present selves into our past selves.

The kind of illusion of memory which thus depends on the spontaneous or independent activity of present imagination is strikingly illustrated in the curious cases of mistaken identity with which the proceedings of our law courts supply us from time to time. When a witness in good faith, but erroneously, affirms that a man is the same as an old acquaintance of his, we may feel sure that there is some striking point or points of similarity between the two persons. But this of itself would only partly account for the illusion, since we often see new faces that, by a number of curious points of affinity, call up in a tantalizing way old and familiar ones. What helps in this case to produce the illusion is the preconception that the present man is the witness's old friend. That is to say, his recollection is partly true, though largely false. He does really recall the similar feature, movement, or tone of voice; he only seems to himself to recall the rest of his friend's appearance; and, for, to speak correctly, he projects the present impression into the past, and constructs his friend's face out of elements supplied by the new one. Owing to this cause, an illusion of memory is apt to multiply itself, one man's assertion of what happened producing by contagion a counterfeited memory's record in other minds.

I said just now that we tend to project our present modes of experience into the past. We paint our past in the hues of the present. Thus we imagine that things which impressed us in some remote period of life must answer to what is impressive in our present stage of mental development. For example, a person recalls a hill near the home of his childhood, and has the conviction that it was of great height. On revisiting the place he finds that the eminence is quite insignificant. How can we account for this? For one thing, it is to be observed that to his undeveloped childish muscles the climbing to the top meant a considerable expenditure of energy, to be followed by a sense of fatigue. The man remembers these feelings, and "unconsciously reasoning" by present experience, that is to say, by the amount of walking which would now produce this sense of fatigue, imagines that the height was vastly greater than it really was. Another reason is, of course, that a wider knowledge of mountains has resulted in a great alteration of the man's standard of height.

From this cause arises a tendency generally to exaggerate the impressions of early life. Youth is the period of novel effects, when all the world is fresh, and new and striking impressions crowd in thickly on the mind. Consequently, it takes much less to produce a given amount of mental excitation in childhood than in after-life. In looking back on this part of our history, we recall for the most part just those events and scenes which deeply stirred our minds by their strangeness, novelty, etc., and so impressed themselves on

the tablet of our memory; and it is this sense of something out of the ordinary beat that gives the characteristic color to our recollection. In other words, we remember something as wonderful, admirable, exceptionally delightful, and so on, rather than as a definitely imagined event. This being so, we unconsciously transform the past occurrence by reasoning from our present standard of what is impressive. Who has not felt an unpleasant disenchantment, on revisiting some church, house, or park that seemed a wondrous paradise to his young eyes? All our feelings are capable of leading us into this kind of illusion. What seemed beautiful or awful to us as children, is now pictured in imagination as corresponding to what moves our mature minds to delight or awe. One cannot help wondering what we should think of our early heroes or heroines if we could see them again with our adult eyes exactly as they were.

While the past may thus take on an illusory hue through the very progress of our experience and our emotional life, it may become further transformed by a more conscious process, namely, the idealizing touch of a present feeling. The way in which the emotions of love, reverence, and so on, thus transform their lost objects is too well known to need illustration. Speaking generally, we may say that in healthy minds the play of these impulses of feeling results in a softening of the harsher features of the past, and in an idealization of its happier and brighter aspects. As Wordsworth says, we may assign to Memory a pencil—

That, softening objects, sometimes even
Outstrips the heart's demand;

That smoothes foregone distress, the lines
Of lingering care subdues,
Long-vanished happiness refines,
And clothes in brighter hues.*

Enough has now been said, perhaps, to show in how many ways our retrospective imagination transforms the actual events of our past life. So thoroughly, indeed, do the relics of this past get shaken together in new kaleidoscopic combinations, so much of the result of later experiences gets imported into our early years, that it may well be asked whether, if the record of our actual life were ever read out to us, we should be able to recognize it. It looks as though we could be sure of recalling only recent events with any degree of accuracy and completeness. As soon as they recede at any considerable distance from us, they are subject to a sort of atmospheric effect. Much grows indistinct and drops altogether out of sight, and what is still seen often takes a new and grotesquely unlike shape. More than this, the play of fancy, like the action of some refracting me-

* This is, perhaps, what is meant by saying that people recall their past enjoyments more readily than their sufferings. Yet much seems to turn on temperament and emotional peculiarities. (For a fuller discussion of the point, see my *Pessimism*, p.

dium, bends and distorts the outlines of memory's objects, making them wholly unlike the originals.

Hallucinations of Memory.—We will now go on to the third class of mnemonic error, which I have called the spectra of memory, where there is not simply a transformation of the past event, but a complete imaginative creation of it. This class of error corresponds, as I have observed, to a hallucination in the region of sense-perception. And just as we distinguished between those hallucinations of sense which arise first of all through some peripherally caused subjective sensation, and those which want even this element of reality and depend altogether on the activity of imagination, so we may mark off two classes of mnemonic hallucination. The false recollection may correspond to something past—and to this extent be a recollection—though not to any objective fact, but only to a subjective representation of such a fact, as, for example, a dream. In this case the imitation of the mnemonic process may be very definite and complete. Or the false recollection may be wholly a retrojection of a present mental image, and so by no stretch of language be deserving of the name recollection.

It is doubtful whether by any effort of will a person could bring himself to regard a fragment of his present imagination as representative of a past reality. Definite and complete hallucinations of this sort do not in normal circumstances arise. It seems necessary for a complete illusion of memory that there should be something past and recovered at the moment, though this may not be a real personal experience.* On the other hand, it is possible, as we shall presently see, under certain circumstances, to create out of present materials, and in a vague and indefinite shape, pure phantoms of past experience, that is to say, quasi-mnemonic images to which there correspond no past occurrences whatever.

All recollection, as we have seen, takes place by means of a present mental image which returns with a certain degree of vividness, and is instantaneously identified with some past event. In many cases this instinctive process of identification proves to be legitimate, for, as a matter of fact, real impressions are the first and the commonest source of such lively mnemonic images. But it is not always so. There are other sources of our mental imagery which compete, so to speak, with the region of real personal experience. And sometimes these leave behind them a vivid image having all the appearance of a genuine mnemonic image. When this is

* The only exception to this that I can think of is to be found in the power which I, at least, possess, after looking at a new object, of representing it as a familiar one. Yet this may be explained by saying that in the case of every object which is clearly apprehended there must be vague revivals of similar objects perceived before. Cases in which recent experiences tend, owing to their peculiar nature, very rapidly to assume the appearance of old events, will be considered presently.

so, it is impossible by a mere introspective glance to detect the falsity of the message from the past. We are in the same position as the purchaser in a jet market, where a spurious commodity has got inextricably mixed up with the genuine, and there is no ready criterion by which he can distinguish the true from the false. Such a person, if he purchases freely, is pretty sure to make a number of mistakes. Similarly, all of us are liable to take counterfeit mnemonic images for genuine ones; that is to say, to fall into an illusion of "recollecting" what never really took place.

But what, it may be asked, are these false and illegitimate sources of mnemonic images, these unauthorized mints which issue a spurious mental coinage, and so confuse the genuine currency? They consist of two regions of our internal mental life, which most closely resemble the actual perception of real things in vividness and force, namely dream-consciousness and waking imagination. Each of these may introduce into the mind vivid images which afterwards tend, under certain circumstances, to assume the guise of recollections of actual events.

That our dream-experience may now and again lead us into illusory recollection has already been hinted. And it is easy to understand why this is so. When dreaming we have, as we have seen, a mental experience which closely approximates in intensity and reality to that of waking perception. Consequently, dreams may leave behind them, for a time, vivid images which simulate the appearance of real images of memory. Most of us, perhaps, have felt this after-effect of dreaming on our waking thoughts. It is sometimes very hard to shake off the impression left by a vivid dream, as, for example, that a dead friend has returned to life. During the day that follows the dream, we have at intermittent moments something like an assurance that we have seen our lost friend; and though we immediately correct the impression by reflecting that we are recalling but a dream, it tends to revive within us with a strange pertinacity.

In addition to this proximate effect of a dream in disturbing the normal process of recollection, there is reason to suppose that dreams may exert a more remote effect on our memories. So widely different in its form is our dreaming from our waking experience, that our dreams are rarely recalled as wholes with perfect distinctness. They revive in us only as disjointed fragments, and only for brief moments when some accidental resemblance in the present happens to stir the latent trace they have left on our minds. We get sudden flashes out of our dream-world, and the process is too rapid, too incomplete for us to identify the region whence the flashes come.

It is highly probable that our dreams are, to a large extent, answerable for the sense of familiarity that we sometimes experience in

visiting a new locality or in seeing a new face. If, as we have found some of the best authorities saying, we are, when asleep, always dreaming more or less distinctly, and if, as we know, dreaming is a continual process of transformation of our waking impressions in new combinations, it is not surprising that our dreams should sometimes take the form of forecasts of our waking life, and that consequently objects and scenes of this life never before seen should now and again wear a familiar look.

That some instances of this puzzling sense of familiarity can be explained in this way is proved. Thus, Paul Radestock, in the work *Schlaf und Traum*, already quoted, tells us: "When I have been taking a walk, with my thoughts quite unfettered, the idea has often occurred to me that I had seen, heard, or thought of this or that thing once before, without being able to recall when, where, and in what circumstances. This happened at the time when, with a view to the publication of the present work, I was in the habit of keeping an exact record of my dreams. Consequently, I was able to turn to this after these impressions, and on doing so I generally found the conjecture confirmed that I had previously dreamt something like it." Scientific inquiry is often said to destroy all beautiful thoughts about nature and life; but while it destroys it creates. Is it not almost a romantic idea that just as our waking life images itself in our dreams, so our dream-life may send back some of its shadowy phantoms into our prosaic every-day world, touching this with something of its own weird beauty?

Not only may dreams beget these momentary illusions of memory, they may give rise to something like permanent illusions. If a dream serves to connect a certain idea with a place or person, and subsequent experience does not tend to correct this, we may keep the belief that we have actually witnessed the event. And we may naturally expect that this result will occur most frequently in the case of those who habitually dream vividly, as young children.

It seems to me that many of the quaint fancies which children get into their heads about things they hear of arise in this way. I know a person who, when a child, got the notion that when his baby-brother was weaned, he was taken up on a grassy hill and tossed about. He had a vivid idea of having seen this curious ceremony. He has in vain tried to get an explanation of this picturesque rendering of an incident of babyhood from his friends, and has come to the conclusion that it was the result of a dream. If, as seems probable, children's dreams thus give rise to subsequent illusions of memory, the fact would throw a curious light on some of the startling quasi-records of childish experience to be met with in autobiographical literature.

Odd though it may at first appear, old age is said to resemble youth in this confusion of

dream-recollection with the memory of waking experience. Dr. Carpenter* tells us of "a lady of advanced age who . . . continually dreams about passing events, and seems entirely unable to distinguish between her dreaming and her waking experiences, narrating the former with implicit belief in them, and giving directions based on them." This confusion in the case of the old may possibly arise not from an increase in the intensity of the dreams, but from a decrease in the intensity of the waking impressions. As Sir Henry Holland remarks,† in old age life approaches to the state of a dream.

The other source of what may, by analogy with the hallucinations of sense, be called the peripherally originating spectra of memory is waking imagination. In certain morbid conditions of mind, and in the case of the few healthy minds endowed with special imaginative force, the products of this mental activity, may, as we saw when dealing with illusions of perception, closely resemble dreams in their vividness and apparent actuality. When this is the case, illusions of memory may arise at once just as in the case of dreams. This will happen more easily when the imagination for some time been occupied with the same group of ideal scenes, persons, or events. To Dickens, as is well known, his fictitious characters were for the time realities, and after he had finished his story their forms and their doings lingered with him, assuming the aspect of personal recollections. So, too, the energetic activity of imagination which accompanies a deep and absorbing sympathy with another's painful experiences, may easily result in so vivid a realization of all their details as to leave an after-sense of *personal* suffering. All highly sympathetic persons who have closely accompanied beloved friends through a great sorrow have known something of this subsequent feeling.

The close connection and continuity between normal and abnormal states of mind is illustrated in the fact that in insanity the illusion of taking past imaginations for past realities becomes far more powerful and persistent. Abercrombie (*Intellectual Powers*, Part III. sec. iv. § 2, "Insanity") speaks of "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." Thus, for example, one patient believed in the reality of the good luck previously predicted by a fortune-teller. Other writers on mental disease observe that it is a common thing for the monomaniac to cherish the delusion that he has actually gained the object of some previous ambition, or is undergoing some previously dreaded calamity.

Nor is it necessary to these illusions of memory that there should be any exceptional force of imagination. A fairly vivid repre-

* *Mental Physiology*, p. 456.

† *Ibid.*, second edit., p. 172.

sensation to ourselves of anything, whether real or fictitious, communicated by others, will often result in something very like a personal recollection. In the case of works of history and fiction, which adopt the narrative tense, this tendency to a subsequent illusion of memory is strengthened by the disposition of the mind at the moment of reading to project itself backward as in an act of recollection. This is a point which will be further dealt with in the next chapter.

In most cases, however, illusions of memory growing out of previous activities of the imagination appear only after the lapse of some time, when in the natural course of things the mental images derived from actual experience would sink to a certain degree of faintness. Habitual novel-readers often catch themselves mistaking the echo of some passage in a good story for the trace left by an actual event. A person's name, a striking saying, and even an event itself, when we first come across it or experience it, may for a moment seem familiar to us, and to recall some past like impression, if it only happens to resemble something in the works of a favorite novelist. And so, too, any recital of another's experience, whether oral or literary, if it deeply interests us and awakens a specially vivid imagination of the events described, may easily become the starting-point of an illusory recollection.

Children are in the habit of "drinking in" with their vigorous and eager imaginations what is told them and read to them, and hence they are specially likely to fall into this kind of error. Not only so: when they grow up and their early recollections lose their definiteness, becoming a few fragments saved from a lost past, it must pretty certainly happen that if any ideas derived from these recitals are preserved, they will simulate the form of memories. Thus, I have often caught myself for a moment under the sway of the illusion that I actually visited the Exhibition of 1851, the reason being that I am able to recall the descriptions given to me of it by my friends, and the excitement attending their journey to London on the occasion. It is to be added that repetition of the act of imagination will tend still further to deepen the subsequent feeling that we are recollecting something. As Hartley well observes, a man, by repeating a story, easily comes to suppose that he remembers it.*

Here, then, we have another source of error that we must take into account in judging of the authenticity of an autobiographical narration of the events of childhood. The more imaginative the writer, the greater the risk of illusion from this source as well as from that of dream-fancies. It is highly probable, indeed, that in such full and explicit records of very early life as those given by Rousseau, by Goethe, or by De Quincey, some part of the quasi-narrative is based on mental images which come floating down the

stream of time, not from the substantial world of the writer's personal experience, but from the airy region of dream-land or of waking fancy.

It is to be added that even when the quasi-recollection does answer to a real event of childish history, it may still be an illusion. The fact that others, in narrating events to us, are able to awaken imaginations that afterward appear as past realities, suggests that much of our supposed early recollection owes its existence to what our parents and friends have from time to time told us respecting the first stages of our history.* We see, then, how much uncertainty attaches to all autobiographical description of very early life.

Modern science suggests another possible source of these distinct spectra of memory. May it not happen that, by the law of hereditary transmission, which is now being applied to mental as well as bodily phenomena, ancestral experiences will now and then reflect themselves in our mental life, and so give rise to apparently personal recollections? No one can say that this is not so. When the infant first steadies his eyes on a human face, it may, for aught we know, experience a feeling akin to that described above, when through a survival of dream-fancy we take some new scene to be already familiar. At the age when new emotions rapidly develop themselves, when our hearts are full of wild romantic aspirations, do there not seem to blend with the eager passion of the time deep resonances of a vast and mysterious past, and may not this feeling be a sort of reminiscence of prenatal, that is, ancestral experience?

This idea is certainly a fascinating one, worthy to be a new scientific support for the beautiful thought of Plato and of Wordsworth. But in our present state of knowledge, any reasoning on this supposition would probably appear too fanciful. Some day we may find out how much ancestral experience is capable of bequeathing in this way, whether simply shadowy, undefinable mental tendencies, or something like definite concrete ideas. If, for example, it were found that a child that was descended from a line of seafaring ancestors, and that had never itself seen or heard of the "dark-gleaming sea," manifested a feeling of recognition when first beholding it, we might be pretty sure that such a thing as recollection of prenatal events does take place. But till we have such facts, it seems better to refer the "shadowy recollections" to sources which fall within the individual's own experience.

We may now pass to those hallucinations of memory which are analogous to the centrally excited hallucinations of sense-perception. As I have observed, these are necessarily vague and imperfectly developed.

I have already had occasion to touch on the fact of the vast amount of our forgotten

* This source of error has not escaped the notice of autobiographers themselves. See the remarks of Goethe in the opening passages of his *Wahrheit und Dichtung*.

* *Loc. cit.*, p. 390.

experience. And I observed that forgetfulness was a common negative condition of mnemonic illusion. I have now to complete this statement by the observation that total forgetfulness of any period or stage of our past experience necessarily tends to a vague kind of hallucination. In looking back on the past, we see no absolute gaps in the continuity of our conscious life; our image of this past is essentially one of an unbroken series of conscious experiences. But if through forgetfulness a part of the series is effaced from memory, how, it may be asked, is it possible to construct this perfectly continuous line? The answer is that we fill up such lacunæ vaguely by help of some very imperfectly imagined common type of conscious experience. Just as the eye sees no gap in its field of vision corresponding to the "blind spot" of the retina, but carries its impression over this area, so memory sees no lacuna in the past, but carries its image of conscious life over each of the forgotten spaces.

Sometimes this process of filling in gaps in the past becomes more complete. Thus, for example, in recalling a particular night a week or so ago, I instinctively represent it to myself as so many hours of lying in bed with the waking sensations appropriate to the circumstances, as those of bodily warmth and rest, and of the surrounding silence and darkness.

It is apparent that I cannot conceive myself apart from some mode of conscious experience. In thinking of myself in any part of the past or future in which there is actually no consciousness, or of which the conscious content is quite unknown to me, I necessarily imagine myself as consciously experiencing something. If I picture myself under any definitely conceived circumstances, I irresistibly import into my mental image the feelings appropriate to these surroundings. In this way, people tend to imagine themselves after death as lying in the grave, feeling its darkness and its chilliness. If the circumstances of the time are not distinctly represented, the conception of the conscious experience which constitutes that piece of the ego is necessarily vague, and seems generally to resolve itself into a representation of ourselves as dimly *self-conscious*. What this consciousness of self consists of is a point that will be taken up presently.

Illusions with respect to Personal Identity.
—It would seem to follow from these errors in imaginatively filling up our past life, that our consciousness of personal identity is by no means the simple and exact process which it is commonly supposed to be. I have already remarked that the very fact of there being so large a region of the irrevocable in our past experience proves our consciousness of personal continuity to be largely a matter of inference, or of imaginative conjecture, and not simply of immediate recollection. Indeed, it may be said that our power of ignoring whole regions of the past and of leap-

ing complacently over huge gaps in our memory and linking on conscious experience with conscious experience, involves an illusory sense of continuity, and so far of personal identity. Thus, our ordinary image of our past life, if only by omitting the very large fraction passed in sleep, in at least an approximately unconscious state, clearly contains an ingredient of illusion.*

It is to be added that the numerous falsifications of our past history, which our retrospective imagination is capable of perpetrating, make our representation of ourselves at different moments and in different stages of our past history to a considerable extent illusory. Thus, though to mistake a past dream-experience for a waking one may not be to lose or confuse the sense of identity, since our dreams are, after all, a part of our experience, yet to imagine that we have ourselves seen what we have only heard from another or read is clearly to confuse the boundaries of our identity. And with respect to longer sections of our history, it is plain that when we wrongly assimilate our remote to our present self, and clothe our childish nature with the feelings and the ideas of our adult life, we identify ourselves overmuch. In this way, through the corruption of our memory, a kind of sham self gets mixed up with the real self, so that we cannot, strictly speaking, be sure that when we project a mnemonic image into the remote past we are not really running away from our true personality.

So far I have been touching only on slight errors in the recognition of that identical self which is represented as persisting through all the fluctuations of conscious life. Other and grosser illusions connected with personal identity are also found to be closely related to defects or disturbances of the ordinary mnemonic process, and so can be best treated here. In order to understand these, we must inquire a little into the nature of our idea and consciousness of a persistent self. Here, again, I would remind the reader that I am treating the point only so far as it can be treated scientifically or empirically, that is to say, by examining what concrete facts or data of experience are taken up into the idea of self. I do not wish to foreclose the philosophical question whether anything more than this empirical content is involved in the conception.

My idea of myself as persisting appears to be built up of certain similarities in the succession of my experiences. Thus, my permanent self consists, on the bodily side, of a continually renewable perception of my own organism, which perception is mainly visual and tactual, and which remains pretty constant within certain limits of time. With

*One wonders whether those persons who, in consequence of an injury to their brain, periodically pass from a normal into an abnormal condition of mind, in each of which there is little or no memory of the contents of the other state, complete their idea of personal continuity in each state by the same kind of process as that described in the text.

this objective similarity is closely conjoined a subjective similarity. Thus, the same sensibilities continue to characterize the various parts of my organism. Similarly, there are the higher intellectual, emotional, and moral peculiarities and dispositions. My idea of my persistent self is essentially a collective image representing a relatively unchanging material object, endowed with unchanging sensibilities and forming a kind of support for permanent higher mental attributes.

The construction of this idea of an enduring unchanging ego is rendered very much easier by the fact that certain concrete feelings are approximately constant elements in our mental life. Among these must be ranked first that dimly discriminated mass of organic sensation which in average states of health is fairly constant, and which stands in sharp contrast to the fluctuating external sensations. These feelings enter into and profoundly color each person's mental image of himself. In addition to this, there are the frequently recurring higher feelings, the dominant passions and ideas which approximate more or less closely to constant factors of our conscious experience.

This total image of the ego becomes defined and rendered precise by a number of distinctions, as that between my own body or that particular material object with which are intimately united all my feelings, and other material objects in general; then between my organism and other human organisms, with which I learn to connect certain feelings answering to my own, but only faintly represented instead of actually realized feelings. To these prime distinctions are added others, hardly less fundamental, as those between my individual bodily appearance and that of other living bodies, between my personal and characteristic modes of feeling and thinking and those of others, and so on.

Our sense of personal identity may be said to be rooted in that special side of the mnemonic process which consists in the linking of all sequent events together by means of a thread of common consciousness. It is closely connected with that smooth, gliding movement of imagination which appears to involve some more or less distinct consciousness of the uniting thread of similarity. And so long as this movement is possible, so long, that is to say, as retrospective imagination detects the common element, which we may specifically call the recurring consciousness of self, so long is there the undisturbed assurance of personal identity. Nay, more, even when such a recognition might seem to be difficult, if not impossible, as in linking together the very unlike selves, viewed both on their objective and subjective sides, of childhood, youth, and mature life, the mind manages, as we have seen, to feign to itself a sufficient amount of such similarity.

But this process of linking stage to stage, of discerning the common or the recurring amid the changing and the evanescent, has its limits. Every great and sudden change

in our experience tends, momentarily at least, to hinder the smooth reflux of imagination. It makes too sharp a break in our conscious life, so that imagination is incapable of spanning the gap and realizing the then and the now as parts of a connected continuous tissue.*

These changes may be either objective or subjective. Any sudden alteration of our bodily appearance sensibly impedes the movement of imagination. A patient after a fever, when he first looks in the glass, exclaims, "I don't know myself." More commonly the bodily changes which affect the consciousness of an enduring self are such as involve considerable alterations of *cœnæsthesia*, or the mass of stable organic sensation. Thus, the loss of a limb, by cutting off a portion of the old sensations through which the organism may be said to be immediately felt, and by introducing new and unfamiliar feelings, will distinctly give a shock to our consciousness of self.

Purely subjective changes, too, or, to speak correctly, such as are known subjectively only, will suffice to disturb the sense of personal unity. Any great moral shock, involving something like a revolution in our recurring emotional experience, seems at the moment to rupture the bond of identity. And even some time after, as I have already remarked, such cataclysms in our mental geology lead to the imaginative thrusting of the old personality away from the new one under the form of a "dead self." †

We see, then, that the failure of our ordinary assurance of personal identity is due to the recognition of difference without similarity. It arises from an act of memory—for the mind must still be able to recall the past, dimly at least—but from a memory which misses its habitual support in a recognized element of constancy. If there is no memory, that is to say, if the past is a complete blank, the mind simply feels a rupture of identity without any transformation of self. This is our condition on awaking from a perfectly forgotten period of sleep, or from a perfectly unconscious state (if such is possible) when induced by *anæsthetics*. Such gaps are, as we have seen, easily filled up, and the sense of identity restored by a kind of retrospective

* The reader will remark that this condition of clear intellectual consciousness, namely, a certain degree of similarity and continuity of character in our successive mental states, is complementary to the other condition, constant change, already referred to. It may, perhaps, be said that all clear consciousness lies between two extremes of excessive sameness and excessive difference.

† It follows that any great transformation of our environment may lead to a partial confusion with respect to self. For not only do great and violent changes in our surroundings beget profound changes in our feelings and ideas, but since the idea of self is under one of its aspects essentially that of a relation to not-self, any great revolution in the one term will confuse the recognition of the other. This fact is expressed in the common expression that we "lose ourselves" when in unfamiliar surroundings, and the process of orientation, or "taking our bearings," fails.

"skipping." On the other hand, the confusion which arises from too great and violent a transformation of our *remembered* experiences is much less easily corrected. As long as the recollection of the old feelings remains, and with this the sense of violent contrast between the old and the new ones, so long will the illusion of two sundered selves tend to recur.

The full development of this process of imaginative fission or cleavage of self is to be met with in mental disease. The beginnings of such disease, accompanied as they commonly are with disturbances of bodily sensations and the recurring emotions, illustrate in a very interesting way the dependence of the recognition of self on a certain degree of uniformity in the contents of consciousness. The patient, when first aware of these changes, is perplexed, and often regards the new feelings as making up another self, a foreign *Tu*, as distinguished from the familiar *Ego*. And sometimes he expresses the relation between the old and the new self in fantastic ways, as when he imagines the former to be under the power of some foreign personality.

When the change is complete, the patient is apt to think of his former self as detached from his present, and of his previous life as a kind of unreal dream; and this fading away of the past into shadowy unreal forms has, as its result, a curious aberration in the sense of time. Thus, it is said that a patient, after being in an asylum only one day, will declare that he has been there a year, five years, and even ten years.* This confusion as to self naturally becomes the starting-point of illusions of perception; the transformation of self seeming to require as its logical correlative (for there is a crude logic even in mental disease) a transformation of the environment. When the disease is fully developed under the particular form of monomania, the recollection of the former normal self commonly disappears altogether, or fades away into a dim image of some perfectly separate personality. A new ego is now fully substituted for the old. In other and more violent forms of disease (dementia) the power of connecting the past and present may disappear altogether, and nothing but the *disjecta membra* of an ego remain.

Enough has, perhaps, been said to show how much of uncertainty and of self-deception enters into the processes of memory. This much-esteemed faculty, valuable and indispensable though it certainly is, can clearly lay no claim to that absolute infallibility which is sometimes said to belong to it. Our individual recollection, left to itself, is liable to a number of illusions even with

regard to fairly recent events, and in the case of remote ones it may be said to err habitually and uniformly in a greater or less degree. To speak plainly, we can never be certain on the ground of our personal recollection alone that a distant event happened exactly in the way and at the time that we suppose. Nor does there seem to be any simple way by mere reflection on the contents of our memory of distinguishing what kinds of recollection are likely to be illusory.

How, then, it may be asked, can we ever be certain that we are faithfully recalling the actual events of the past? Given a fairly good, that is, a cultivated memory, it may be said that in the case of very recent events a man may feel certain that, when the conditions of careful attention at the time to what really happened were present, a distinct recollection is substantially correct. Also it is obvious that with respect to all repeated experiences our memories afford practically safe guides. When memory becomes the basis of some item of generalized knowledge, as, for example, of the truth that the pain of indigestion has followed a too copious indulgence in rich food, there is little room for an error of memory properly so called. On the other hand, when an event is not repeated in our experience, but forms a unique link in our personal history, the chances of error increase with the distance of the event; and here the best of us will do well to have resort to a process of verification and, if necessary, of correction.

In order thus to verify the utterances of memory, we must look beyond our own internal mental states to some external facts. Thus, the recollections of our early life may often be tested by letters written by ourselves or our friends at the time, by diaries, and so on. When there is no unerring objective record to be found, we may have recourse to the less satisfactory method of comparing our recollections with those of others. By so doing we may reach a rough average recollection which shall at least be free from any individual error corresponding to that of personal equation in perception. But even thus we cannot be sure of eliminating all error, since there may be a cause of illusion acting on all our minds alike, as, for example, the extraordinary nature of the occurrence, which would pretty certainly lead to a common exaggeration of its magnitude, etc., and since, moreover, this process of comparing recollections affords an opportunity for that reading back a present preconception into the past to which reference has already been made.

The result of our inquiry is less alarming than it looks at first sight. Knowledge is valuable for action, and error is chiefly hurtful in so far as it misdirects conduct. Now, in a general way, we do not need to act upon a recollection of remote single events; our conduct is sufficiently shaped by an accurate recollection of recent single events, together with those bundles of recollections of

* On these disturbances of memory and self-recognition in insanity, see Griesinger, *op. cit.*, pp. 49-51; also Ribot, "Des Désordres Généraux de la Mémoire," in the *Revue Philosophique*, August, 1880. It is related by Leuret (*Fragments Psych. sur la Folie*, p. 277) that a patient spoke of his former self as "la personne de moi-même."

recurring events and sequences of events which constitute our knowledge of ourselves and our common knowledge of the world about us. Nature has done commendably well in endowing us with the means of cultivating our memories up to this point, and we ought not to blame her for not giving us powers which would only very rarely prove of any appreciable practical service to us.

NOTE.

MOMENTARY ILLUSIONS OF SELF-CONSCIOUSNESS.

The account of the apparent ruptures in our personal identity given in this chapter may help us to understand the strange tendency to confuse self with other objects which occasionally appears in waking consciousness and in dreams. These errors may be said generally to be due to the breaking up of the composite image of self into its fragments, and the regarding of certain of these only. Thus, the momentary occurrence of partial illusion in intense sympathy with others, including that imaginative projection of self into inanimate objects, to which reference has already been made, may be said to depend on exclusive attention to the subjective aspect of self, to the total disregard of the objective aspect. In other words, when we thus momentarily "lose ourselves," or merge our own existence in that of another object, we clearly let drop out of sight the visual representation of our own individual organism. On the other hand, when in dreams we double our personality, or represent to ourselves an external self which becomes the object of visual perception, it is probably because we isolate in imagination the objective aspect of our personality from the other and subjective aspect. It is not at all unlikely that the several confusions of self touched on in this chapter have had something to do with the genesis of the various historical theories of a transformed existence, as, for example, the celebrated doctrine of metempsychosis.

CHAPTER XI.

ILLUSIONS OF BELIEF.

OUR knowledge is commonly said to consist of two large varieties—Presentative and Representative. Representative knowledge, again, falls into two chief divisions. The first of these is Memory, which, though not primary or original, like presentative knowledge, is still regarded as directly or intuitively certain. The second division consists of all other representative knowledge besides memory, including, among other varieties, our anticipations of the future, our knowledge of others' past experience, and our general knowledge about things. There is no one term which exactly hits off this large sphere of cognition: I propose to call it *Belief*. I am aware that this is by no means a perfect

word for my purpose, since, on the one hand, it suggests that every form of this knowledge must be less certain than presentative or mnemonic knowledge, which cannot be assumed; and since, on the other hand, the word is so useful a one in psychology, for the purpose of marking off the subjective fact of assurance in all kinds of cognition. Nevertheless, I know not what better one I could select in order to make my classification answer as closely as a scientific treatment will allow to the deeply fixed distinctions of popular psychology.

It might at first seem as if perception, introspection, and memory must exhaust all that is meant by immediate, or self-evident, knowledge, and as if what I have here called belief must be uniformly mediate, derivative, or inferred knowledge. The apprehension of something now present to the mind, externally or internally, and the reapprehension through the process of memory of what was once so apprehended, might appear to be the whole of what can by any stretch of language be called direct cognition of things. This at least would seem to follow from the empirical theory of knowledge, which regards perception and memory as the ground or logical source of all other forms of knowledge.

And even if we suppose, with some philosophers, that there are certain innate principles of knowledge, it seems now to be generally allowed that these, apart from the particular facts of experience, are merely abstractions; and that they only develop into complete knowledge when they receive some empirical content, which must be supplied either by present perception or by memory. So that in this case, too, all definite concrete knowledge would seem to be either presentative cognition, memory, or, lastly, some mode of inference from these.

A little inquiry into the mental operations which I here include under the name belief will show, however, that they are by no means uniformly processes of inference. To take the simplest form of such knowledge, anticipation of some personal experience: this may arise quite apart from recollection, as a spontaneous projection of a mental image into the future. A person may feel "intuitively certain" that something is going to happen to him which does not resemble anything in his past experience. Not only so; even when the expectation corresponds to a bit of past experience, this source of the expectation may, under certain circumstances, be altogether lost to view, and the belief assume a secondarily automatic or intuitive character. Thus, a man may have first entertained a belief in the success of some undertaking as the result of a rough process of inference, but afterward go on trusting when the grounds for his confidence are wholly lost sight of.

This much may suffice for the present to show that belief sometimes approximates to immediate, or self-evident, conviction. How far this is the case will come out in the course of our inquiry into its different forms. This

being so, it will be needful to include in our present study the errors connected with the process of belief in so far as they simulate the immediate instantaneous form of illusion.

What I have here called belief may be roughly distinguished into simple and compound belief. By a simple belief I mean one which has to do with a single event or fact. It includes simple modes of expectation, as well as beliefs in single past facts not guaranteed by memory. A compound belief, on the other hand, has reference to a number of events or facts. Thus, our belief in the continued existence of a particular object, as well as our convictions respecting groups or classes of events, must be regarded as compound, since they can be shown to include a number of simple beliefs.

A. *Simple Illusory Belief: Expectation.*—It will be well to begin our inquiry by examining the errors connected with simple expectations, so far as these come under our definition of illusion. And here, following our usual practice, we may set out with a very brief account of the nature of the intellectual process in its correct form. For this purpose we shall do well to take a complete or definite anticipation of an event as our type.*

The ability of the mind to move forward, forecasting an order of events in time, is clearly very similar to its power of recalling events. Each depends on the capability of imagination to represent a sequence of events or experiences. The difference between the two processes is that in anticipation the imagination setting out from the present traces the succession of experiences in their actual order, and not in the reverse order. It would thus appear to be a more natural and easy process than recollection, and observation bears out this conclusion. Any object present to perception which is associated with antecedents and consequents with the same degree of cohesion, calls up its consequents rather than its antecedents. The spectacle of the rising of the sun carries the mind much more forcibly forward to the advancing morning than backward to the receding night. And there is good reason to suppose that in the order of mental development the power of distinctly expecting an event precedes that of distinctly recollecting one. Thus, in the case of the infant mind, as of the animal intelligence, the presence of signs of coming events, as the preparation of food, seems to excite distinct and vivid expectation.†

As a mode of assurance, expectation is clearly marked off from memory, and is not explainable by means of this. It is a fundamentally distinct kind of conviction. So far

as we are capable of analyzing it, we may say that its peculiarity is its essentially active character. To expect a thing is to have stirred the active impulses, including the powers of attention; it is to be on the alert for it, to have the attention already focused for it, to begin to rehearse the actions which the actual happening of the event—for example, the approach of a welcome object—would excite. It thus stands in marked contrast to memory, which is a passive attitude of mind, becoming active only when it gives rise to the expectation of a recurrence of the event.*

And now let us pass to the question whether expectation ever takes the form of immediate knowledge. It may, perhaps, be objected that the anticipation of something future cannot be knowledge at all in the sense in which the perception of something present or the recollection of something past is knowledge. But this objection, when examined closely, appears to be frivolous. Because the future fact has not yet come into the sphere of actual existence, it is none the less the object of a perfect assurance.†

But, even if it is conceded that expectation is knowledge, the objection may still be urged that it cannot be immediate, since it is the very nature of expectation to ground itself on memory. I have already hinted that this is not the case, and I shall now try to show that what is called expectation covers much that is indistinguishable from immediate intuitive certainty, and consequently offers room for an illusory form of error.

Let us set out with the simplest kind of expectation, the anticipation of something about to happen within the region of our personal experience, and similar to what has happened before. And let the coming of the event be first of all suggested by some present external fact or sign. Suppose, for example, that the sky is heavy, the air sultry, and that I have a bad headache; I confidently anticipate a thunderstorm. It would commonly be said that such an expectation is a kind of inference from the past. I remember that these appearances have been followed by a thunderstorm very often, and I infer that they will in this new case be so followed.

To this, however, it may be replied that in most cases there is no conscious going back to the past at all. As I have already remarked, anticipation is pretty certainly in advance of memory in early life. And even after the habit of passing from the past to the future, from memory to expectation, has been formed, the number of the past repeti-

* J. S. Mill distinguishes expectation as a radically distinct mode of belief from memory, but does not bring out the contrast with respect to activity here emphasized (James Mill's *Analysis of the Human Mind*, edited by J. S. Mill, p. 411, etc.). For a fuller statement of my view of the relation of belief to action, as compared with that of Professor Bain, see my earlier work.

† For some good remarks on the logical aspects of future events as matters of fact, see Mr. Venn's *Logic of Chance*, ch. x.

* In the following account of the process of belief and its errors, I am going over some of the ground traversed by my essay on *Belief, its Varieties and Conditions* ("Sensation and Intuition," ch. iv.). To this essay I must refer the reader for a fuller analysis of the subject.

† For an account of the difference of mechanism in memory and expectation, see Taine, *De l'Intelligence*, 2ième partie, livre premier, ch. ii. sec. 6.

tions of experience would prevent the mind's clearly reverting to them. And, further, the very force of habit would tend to make the transition from memory to expectation more and more rapid, automatic, and unconscious. Thus it comes about that all distinctly suggested approaching events seem to be expected by a kind of immediate act of belief. The present signs call up the representation of the coming event with all the force of a direct intuition. At least, it may be said that if a process of inference, it is one which has the minimum degree of consciousness.

It might still be urged that the mind passes from the *present* facts as signs, and so still performs a kind of reasoning process. This is, no doubt, true, and differentiates expectation from perception, in which there is no conscious transition from the presented to the represented. Still I take it that this is only a process of reasoning in so far as the sign is consciously generalized, and this is certainly not true of early expectations, or even of any expectations in a wholly uncultivated mind.

For these reasons I think that any errors involved in such an anticipation may, without much forcing, be brought under our definition of illusion. When due altogether to the immediate force of suggestion in a present object or event, and not involving any conscious transition from past to future, or from general truth to particular instance, these errors appear to me to have more of the character of illusions than of that of fallacies.

Much the same thing may be said about the vivid anticipations of a familiar kind of experience called up by a clear and consecutive verbal suggestion. When a man, even with an apparent air of playfulness, tells me that something is going to happen, and gives a consistent consecutive account of this, I have an anticipation which is not consciously grounded on any past experience of the value of human testimony in general, or of this person's testimony in particular, but which is instantaneous and quasi-immediate. Consequently, any error connected with the mental act approximates to an illusion.

So far I have supposed that the anticipated event is a recurring one, that is to say, a kind of experience which has already become familiar to us. This, however, holds good only of a very few of our experiences. Our life changes as it progresses, both outwardly and inwardly. Many of our anticipations, when first formed, involve much more than a reproduction of a past experience, namely, a complex act of constructive imagination. Our representations of these untried experiences, as, for example, those connected with a new set of circumstances, a new social condition, a new mode of occupation, and so on, are clearly at the first far from simple processes of inference from the past. They are put together by the aid of many fragmentary images, restored by distinct threads of association, yet by a process

so rapid as to appear like an intuition. Indeed, the anticipation of such new experiences more often resembles an instantaneous imaginative intuition than a process of conscious transition from old experiences. In the case of these expectations, then, there would clearly seem to be room for illusion from the first.

But even supposing that the errors connected with the first formation of an expectation cannot strictly be called illusory, we may see that such simple expectation will, in certain cases, tend to grow into something quite indistinguishable from illusion. I refer to expectations of *remote* events which allow of frequent renewal. Even supposing the expectation to have originated from some rational source, as from a conscious inference from past experience, or from the acceptance of somebody's statement, the very habit of cherishing the anticipation tends to invest it with an automatic self-sufficient character. To all intents and purposes the prevision becomes intuitive, by which I mean that the mind is at the time immediately certain that something is going to happen, without needing to fall back on memory or reflection. This being so, whenever the initial process of inference or quasi-inference happens to have been bad, an illusory expectation may arise. In other words, the force of repetition and habit tends to harden what may, in its initial form, have resembled a kind of fallacy into an illusion.

And now let us proceed further. When a permanent expectation is thus formed, there arises the possibility of processes which favor illusion precisely analogous to those which we have studied in the case of memory.

In the first place, the habit of imagining a future event is attended with a considerable amount of illusion as to time or remoteness. After what has been said respecting the conditions of such error in the case of memory, a very few words will suffice here.

It is clear, then, in the first place, that the mind will tend to shorten any period of future time, and so to antedate, so to speak, a given event, in so far as the imagination is able clearly and easily to run over its probable experiences. From this it follows that repeated forecastings of series of events, by facilitating the imaginative process, tend to beget an illusory appearance of contraction in the time anticipated. Moreover, since in anticipation so much of each division of the future time-line is unknown, it is obviously easy for the expectant imagination to skip over long intervals, and so to bring together widely remote events.

In addition to this general error, there are more special errors. As in the case of recollection, vividness of mental image suggests propinquity; and accordingly, all vivid anticipations, to whatever cause the vividness may be owing, whether to powerful suggestion on the part of external objects, to verbal suggestion, or to spontaneous imagination

and feeling, are apt to represent their objects as too near.

It follows that an event intensely longed for, in so far as the imagination is busy in representing it, will seem to approach the present. At the same time, as we have seen, an event much longed for, commonly appears to be a great while coming, the explanation being that there is a continually renewed contradiction between anticipation and perception. The self-adjustment of the mind in the attitude of expectant attention proves again and again to be vain and futile, and it is this fact which brings home to it the slowness of the sequences of perceived fact, as compared with the rapidity of the sequences of imagination.

When speaking of the retrospective estimate of time, I observed that the apparent distance of an event depends on our representation of the intervening time-segment. And the same remark applies to the prospective estimate. Thus, an occurrence which we expect to happen next week will seem specially near if we know little or nothing of the contents of the intervening space, for in this case the imagination does not project the experience behind a number of other distinctly represented events.

Finally, it is to be remarked that the prospective appreciation of any duration will tend to err relatively by way of excess, where the time is exceptionally filled out with clearly expected and deeply interesting experiences. To the imagination of the child, a holiday, filled with new experiences, appears to be boundless.

Thus far I have assumed that the date of the future event is a matter which might be known. It is, however, obvious, from the very nature of knowledge with respect to the future, that we may sometimes be certain of a thing happening to us without knowing with any degree of definiteness when it will happen. In the case of these temporally undefined expectations, the law already expounded holds good that all vividness of representation tends to lend the things represented an appearance of approaching events. On the other hand, there are some events, such as our own death, which our instinctive feelings tend to banish to a region so remote as hardly to be realized at all.

So much with respect to errors in the localizing of future events.

In the second place, a habit of imagining a future event or group of events will give play to those forces which tend to transform a mental image. In other words, the habitual indulgence of a certain anticipation tends to an illusory view, not only of the "when?" but also of the "how?" of the future event. These transformations, due to subtle processes of emotion and intellect, and reflecting the present habits of these, exactly resemble those by which a remembered event becomes gradually transformed. Thus, we carry on our present habits of thought and feeling into the remote future, foolishly imagining that

at a distant period of life, or in greatly altered circumstances, we shall desire and aim at the same things as now in our existing circumstances. In close connection with this forward projection of our present selves, there betrays itself a tendency to look on future events as answering to our present desires and aspirations. In this way, we are wont to soften, beautify, and idealize the future, marking it off from the hard matter-of-fact present.

The less like the future experience to our past experience, or the more remote the time anticipated, the greater the scope for such imaginative transformation. And from this stage of fanciful transformation of a future reality to the complete imaginative creation of such a reality, the step is but a small one. Here we reach the full development of illusory expectation, that which corresponds to hallucination in the region of sense-perception.

In order to understand these extreme forms of illusory expectation, it will be necessary to say something more about the relation of imagination to anticipation in general. There are, I conceive, good reasons for saying that any kind of vivid imagination tends to pass into a semblance of an expectation of a coming personal experience, or an event that is about to happen within the sphere of our own observation. It has long been recognized by writers, among whom I may mention Dugald Stewart, that to distinctly imagine an event or object is to feel for the moment a degree of belief in the corresponding reality. Now, I have already said that expectation is probably a more natural and an earlier developed state of mind than memory. And so it seems probable that any mental image which happens to take hold on the mind, if not recognized as one of memory or as corresponding to a fact in somebody else's experience, naturally assumes the form of an expectation of a personal experience. The force of the expectation will vary in general as the vividness and persistence of the mental image. Moreover, it follows, from what has been said, that this force of imagination will determine what little time-character we ever give to these wholly ungrounded illusions.

We see, then, that any process of spontaneous imagination will tend to beget some degree of illusory expectation. And among the agencies by which such ungrounded imagination arises, the promptings of feeling play the most conspicuous part. A present emotional excitement may give to an imaginative anticipation, such as that of the prophetic enthusiast, a reality which approximates to that of an actually perceived object. And even where this force of excitement is wanting, a gentle impulse of feeling may suffice to beget an assurance of a distant reality. The unknown recesses of the remote future offer, indeed, the field in which the illusory impulses of our emotional nature have their richest harvest.

"Thus, from afar, each dim discover'd scene
More pleasing seems than all the past hath been ;
And every form, that Fancy can repair
From dark oblivion, glows divinely there."

The recurring emotions, the ruling aspirations, find objects for themselves in this veiled region. Feelings too shy to burst forth in unseemly anticipation of the immediate future, modestly satisfy themselves with this remote prospect of satisfaction. And thus, there arises the half-touching, half-amusing spectacle of men and women continually renewing illusory hopes, and continually pushing the date of their realization further on as time progresses and brings no actual fruition.

So far I have spoken of such expectations as refer to future personal experience only. Growing individual experience and the enlargement of this by the addition of social experience enable us to frame a number of other beliefs more or less similar to the simple expectations just dealt with. Thus, for example, I can forecast with confidence events which will occur in the lives of others, and which I shall not even witness; or again, I may even succeed in dimly describing events, such as political changes or scientific discoveries, which will happen after my personal experience is at an end. Once more, I can believe in something going on now at some distant and even inaccessible point of the universe, and this appears to involve a conditional expectation, and to mean that I am certain that I or anybody else would see the phenomenon, if we could at this moment be transported to the spot.

All such previsions are supposed to be formed by a process of inference from personal experience, including the trustworthiness of testimony. Even allowing, however, that this was so in the first stages of the belief, it is plain that, by dint of frequent renewal, the expectation would soon cease to be a process of inference, and acquire an apparently self-evident character. This being so, if the expectation is not adequately grounded to start with, it is very likely to develop into an illusion.* And it is to be added that these permanent anticipations may have their origin much more in our own wishes or emotional promptings than in fact and experience. The mind undisciplined by scientific training is wont to entertain numerous beliefs of this sort respecting what is now going on in unvisited parts of the world, or what will happen hereafter in the distant future. The remote, and therefore obscure, in space and in time has always been the favorite region for the projection of pleasant fancies.

Once more, besides these oblique kinds of expectation, I may form other seemingly simple beliefs, to which the term expectation seems less clearly applicable. Thus, on waking in the morning and finding the ground covered with snow, my imagination moves

backward as in the process of memory, and realizes the spectacle of the softly falling snow-flakes in the hours of the night. The oral communication of others' experience, including the traditions of the race, enables me to set out from any present point of time, and reconstruct complex chains of experience of vast length lying beyond the bounds of my own personal recollection.

I need not here discuss what the exact nature of such beliefs is. J. S. Mill identifies them with expectations. Thus, according to him, my belief in the nocturnal snow-storm is the assurance that I should have seen it had I waited up during the night. So my belief in Cicero's oratory resolves itself into the conviction that I should have heard Cicero under certain conditions of time and place, which is identical with my expectation that I shall hear a certain speaker to-morrow if I go to the House of Commons.* However this be, the thing to note is that such retrospective beliefs, when once formed, tend to approximate in character to recollections. This is true even of new beliefs in recent events directly made known by present objective consequences or signs, as the snow-storm. For in this case there is commonly no conscious comparison of the present signs with previously known signs, but merely a direct quasi-mnemonic passage of mind from the present fact to its antecedent. And it is still more true of long-entertained retrospective beliefs. When, for example, the original grounds of an historical hypothesis are lost sight of, and after the belief has hardened and solidified by time, it comes to look much more like a recollection than an expectation. As a matter of fact, we have seen, when studying the illusions of memory, that our personal experience does become confused with that of others. And one may say that all long-cherished retrospective beliefs tend to become assimilated to recollections.

Here then, again, there seems to be room for illusion to arise. Even in the case of a recent past event, directly made known by present objective signs, the mind is liable to err just as in the case of forecasting an immediately approaching event. And such error has all the force of an illusion: its contradiction is almost as great a shock as that of a recollection. When, for example, I enter my house, and see a friend's card lying on the table, I so vividly represent to myself the recent call of my friend, that when I learn the card is an old one which has accidentally been put on the table, I experience a sense of disillusion very similar to that which attends a contradicted perception. The early crude stages of physical science abundantly illustrate the genesis of such illusions.

It may be added that if there be any feeling present in the mind at the time, the barkest suggestion of something having happened

* I say "very likely," because the conclusion of a bad argument may happen to coincide with fact.

* James Mill's *Analysis of the Human Mind* edited by J. S. Mill, vol. i. p. 414, et seq.

will suffice to produce the immediate assurance. Thus, an angry person is apt to hastily accuse another of having done certain things on next to no evidence. The love of the marvelous seems to have played a conspicuous part in building up and sustaining the fanciful hypotheses which mark the dawn of physical science.

Verbal suggestion is a common mode of producing this semblance of a recollected event. By means of the narrative style, it vividly suggests the idea that the events described belong to the past, and excites the imagination to a retrospective construction of them as though they were remembered events. Hence the power of works of fiction on the ordinary mind. Even when there is no approach to an illusion of perception, or to one of memory in the strict sense, the reading of a work of fiction begets at the moment a retrospective belief that has a certain resemblance to a recollection.

All such illusions as those just illustrated, if not afterward corrected, tend to harden into yet more distinctly "intuitive" errors. Thus, for example, one of the crude geological hypotheses, of which Sir Charles Lyell tells us,* would, by the mere fact of being kept before the mind, tend to petrify into a hard fixed belief. And this process of hardening is seen strikingly illustrated in the case of traditional errors, especially when these fall in with our own emotional propensities. Our habitual representations of the remote historical past are liable to much the same kind of error as our recollections of early personal experience. The wrong statements of others and the promptings of our own fancies may lead in the first instance to a filling up of the remote past with purely imaginary shapes. Afterward the particular origin of the belief is forgotten, and the assurance assumes the aspect of a perfectly intuitive conviction. The hoary traditional myths respecting the golden age, and so on, and the persistent errors of historians under the sway of a strong emotional bias, illustrate such illusions.

So much as to simple illusions of belief, or such as involve single representations only. Let us now pass to compound illusions, which involve a complex group of representations.

B. Compound Illusory Belief.—A familiar example of a compound belief is the belief in a permanent or persistent individual object of a certain character. Such an idea, whatever its whole meaning may be—and this is a disputed point in philosophy—certainly seems to include a number of particular representations, corresponding to direct personal recollections, to the recollections of others, and to numerous anticipations of ourselves and of others. And if the object be a living creature endowed with feelings, our idea of it will contain, in addition to these represented perceptions of ourselves or of others, a series of represented insights, namely, such as cor-

respond to the inner experience of the being, so far as this is known or imagined.

It would thus seem that the idea which we habitually carry about with us respecting a complex individual object is a very composite idea. In order to see this more fully, let us inquire into what is meant by our belief in a person. My idea of a particular friend contains, among other things, numbers of vague representations of his habitual modes of feeling and acting, and numbers of still more vague expectations of how he will or might feel and act in certain circumstances.

Now, it is plain that such a composite idea must have been a very slow growth, involving, in certain stages of its formation, numerous processes of inference or quasi-inference from the past to the future. But in process of time these elements fuse inseparably: the directly known and the inferred no longer stand apart in my mind; my whole conception of the individual as he has been, is, and will be, seems one indivisible cognition; and this cognition is so firmly fixed and presents itself so instantaneously to the mind when I think of the object, that it has all the appearance of an intuitive conviction.

If this is a fairly accurate description of the structure of these compound representations and of their attendant beliefs, it is easy to see how many openings for error they cover. To begin with, my representation of so complex a thing as a concrete personality must always be exceedingly inadequate and fragmentary. I see only a few facets of the person's many-sided mind and character. And yet, in general, I am not aware of this, but habitually identify my representation with the totality of the object.

More than this, a little attention to the process by which these compound beliefs arise will disclose the fact that this apparently adequate representation of another has arisen in part by other than logical processes. If the blending of memory and expectation were simply a mingling of facts with correct inferences from these, it might not greatly matter; but it is something very different from this. Not only has our direct observation of the person been very limited, even that which we have been able to see has not been perfectly mirrored in our memory. It has already been remarked that recollection is a selective process, and this truth is strikingly illustrated in the growth of our enduring representations of things. What stamps itself on my memory is what surprised me or what deeply interested me at the moment. And then there are all the risks of mnemonic illusion to be taken into account as well. Thus, my idea of a person, so far even as it is built up on a basis of direct personal recollection, is essentially a fragmentary and to some extent a misleading representation.

Nor is this all. My habitual idea of a person is a resultant of forces of memory conjoined with other forces. Among these

* *Principles of Geology*, ch. iii,

are to be reckoned the influence of illusory perception or insight, my own and that of others. The amount of misinterpretation of the words and actions of a single human being during the course of a long acquaintance must be very considerable. To these must be added the effect of erroneous single expectations and reconstructions of past experiences, in so far as these have not been distinctly contradicted and dissipated. All these errors, connected with single acts of observing or inferring the feelings and doings of another, have their effect in distorting the subsequent total representation of the person.

Finally, we must include a more distinct ingredient of active illusion, namely, all the complex effects of the activity of imagination as led, not by fact and experience, but by feeling and desire. Our permanent idea of another reflects all that we have fondly imagined the person capable of doing, and thus is made up of an ideal as well as a real actually known personality. And this result of spontaneous imagination must be taken to include the ideals entertained by others who are likely to have influenced us by their beliefs.*

Enough has probably been said to show how immensely improbable it is that our permanent cognition of so complex an object as a particular human being should be at all an accurate representation of the reality, how much of the erroneous is certain to get mixed up with the true. And this being so, we may say that our apparently simple direct cognition of a given person, our assurance of what he is and will continue to be, is to some extent illusory.

Illusion of Self-Esteem.—Let us now pass to another case of compound representation, where the illusory element is still more striking. I refer to the idea of self which each of us habitually carries about with him. Every man's opinion of himself, as a whole, is a very complex mental product, in which facts known by introspection no doubt play a part, but probably only a very subordinate part. It is obvious, from what has been said about the structure of our habitual representations of other individuals, that our ordinary representation of ourselves will be tinged with that mass of error which we have found to be connected with single acts of introspection, recollections of past personal experience, and illusory single expectations of future personal experiences. How large an opening for erroneous conviction here presents itself can only be understood by a reference to certain deeply fixed impulses and feelings connected with the very consciousness of self, and favoring what I have marked off as active illusion. I shall try to show very briefly that each man's intuitive persuasion of his own powers, gifts, or im-

portance—in brief, of his own particular value, contains, from the first, a palpable ingredient of active illusion.

Most persons, one supposes, have with more or less distinct consciousness framed a notion of their own value, if not to the world generally, at least to themselves. And this notion, however undefined it may be, is held to with a singular tenacity of belief. The greater part of mankind, indeed, seem never to entertain the question whether they really possess points of excellence. They assume it as a matter perfectly self-evident and appear to believe in their vaguely conceived worth on the same immediate testimony of consciousness by which they assure themselves of their personal existence. Indeed, the conviction of personal consequence may be said to be a constant factor in most men's consciousness. However restrained by the rules of polite intercourse, it betrays its existence and its energy in innumerable ways. It displays itself most triumphantly when the mind is suddenly isolated from other minds, when other men unite in heaping neglect and contempt on the believer's head. In these moments he proves an almost heroic strength of confidence, believing in himself and in his claims to careful consideration when all his acquaintance are practically avowing their disbelief.

The intensity of this belief in personal value may be observed in very different forms. The young woman who, quite independently of others' opinion, and even in defiance of it, cherishes a conviction that her external attractions have a considerable value; the young man who, in the face of general indifference, persists in his habit of voluble talk on the supposition that he is conferring on his fellow-creatures the fruits of profound wisdom; and the man of years whose opinion of his own social importance and moral worth is quite disproportionate to the estimation which others form of his claims—these alike illustrate the force and pertinacity of the belief.

There are, no doubt, many exceptions to this form of self-appreciation. In certain robust minds, but little given to self-reflection, the idea of personal value rarely occurs. And then there are timid, sensitive natures that betray a tendency to self-distrust of all kinds, and to an undue depreciation of personal merit. Yet even here traces of an impulse to think well of self will appear to the attentive eye, and one can generally recognize that this impulse is only kept down by some other stronger force, as, for example, extreme sensitiveness to the judgment of others, great conscientiousness, and so on. And however this be, it will be allowed that the average man rates himself highly.

It is to be noticed that this persuasion of personal value or excellence is, in common, very vague. A man may have a general sense of his own importance without in the least being able to say wherein exactly his superiority lies. Or, to put it another way,

* To make this rough analysis more complete, I ought, perhaps, to include the effect of all the errors of introspection, memory, and spontaneous belief, into which the person himself falls, in so far as they communicate themselves to others.

he may have a strong conviction that he stands high in the scale of morally deserving persons, and yet be unable to define his position more nearly. Commonly, the conviction seems to be only definable as an assurance of a superlative of which the positive and comparative are suppressed. At most, his idea of his moral altitude resolves itself into the proposition, "I am a good deal better than Mr. A. or Mr. B." Now, it is plain that in these intuitive judgments on his own excellence, the man is making an assertion with respect, not only to inner subjective feelings which he only can be supposed to know immediately, but also to external objective facts which are patent to others, namely, to certain active tendencies and capabilities, to the direction of external conduct in certain lines.* Hence, if the assertion is erroneous, it will be in plain contradiction to others' perceptions of his powers or moral endowments. And this is what we actually find. A man's self-esteem, in a large preponderance of cases, is plainly in excess of others' esteem of him. What the man conceives himself to be differs widely from what others conceive him to be.

"Oh wad some power the giftie gie us,
To see oursel as others see us!"

Now, whence comes this large and approximately uniform discrepancy between our self-esteem and others' esteem of us? By trying to answer this question we shall come to understand still better the processes by which the most powerful forms of illusion are generated.

It is, I think, a matter of every-day observation that children manifest an apparently instinctive disposition to magnify self as soon as the vaguest idea of self is reached. It is very hard to define this feeling more precisely than by terming it a rudimentary sense of personal importance. It may show itself in very different ways, taking now a more active form, as an impulse of self-assertion, and a desire to enforce one's own will to the suppression of others' wills, and at another time wearing the appearance of a passive emotion, an elementary form of *amour propre*. And it is this feeling which forms the germ of the self-estimation of adults. For in truth all attribution of value involves an element of feeling, as respect, and of active desire, and the ascription of value to one's self is in its simplest form merely the expression of this state of mind.

But how is it, it may be asked, that this feeling shows itself instinctively as soon as the idea of self begins to arise in consciousness? The answer to this question is to be found, I imagine, in the general laws of mental development. All practical judgments like that of self-estimation are based on some

feeling which is developed before it; and, again, the feeling itself is based on some instinctive action which, in like manner, is earlier than the feeling. Thus, for example, an Englishman's judgment that his native country is of paramount value springs out of a long-existent sentiment of patriotism, which sentiment again may be regarded as having slowly grown up about the half-blindly followed habit of defending and furthering the interests of one's nation or tribe. In a similar way, one suspects, the feeling of personal worth, with its accompanying judgment, is a product of a long process of instinctive action.

What this action is it is scarcely necessary to remind the reader. Every living organism strives, or acts as if it consciously strove, to maintain its life and promote its well-being. The actions of plants are clearly related to the needs of a prosperous existence, individual first and serial afterward. The movements of the lower animals have the same end. Thus, on the supposition that man has been slowly evolved from lower forms, it is clear that the instinct of self-promotion must be the deepest and most ineradicable element of his nature, and it is this instinct which directly underlies the rudimentary sentiment of self-esteem of which we are now treating.

This instinct will appear, first of all, as the unreflecting organized habit of seeking individual good, of aiming at individual happiness, and so of pushing on the action of the individual will. This impulse shows itself in distinct form as soon as the individual is brought into competition with another similarly constituted being. It is the force which displays itself in all opposition and hostility, and it tends to limit and counteract the gregarious instincts of the race. In the next place, as intelligence expands, this instinctive action becomes conscious pursuit of an end, and at this stage the thing pursued attracts to itself a sentiment. The individual now consciously desires his own happiness as contrasted with that of others, knowingly aims at enlarging his own sphere of action to the diminution of others' spheres. Here we have the nascent sentiment of self-esteem, on which all later judgments respecting individual importance are in part at least founded.

Thus, we see that long before man had arrived at an idea of self there had been growing up an emotional predisposition to think well of self. And in this way we may understand how it is that this sentiment of self-esteem shows itself immediately and instinctively in the child's mind as soon as its unfolding consciousness is strong enough to grasp the first rough idea of personal existence. Far down, so to speak, below the surface of distinct consciousness, in the intricate formation of ganglion-cell and nerve-fiber, the connections between the idea of self and this emotion of esteem have been slowly woven through long ages of animal

* In the case of a vain woman thinking herself much more pretty than others think her, the error is still more obviously one connected with a belief in objective fact.

development. Here, then, we seem to have the key to the apparently paradoxical fact that a man, with all his superior means of studying his own feelings, commonly esteems himself, in certain respects at least, less accurately than a good external observer would be capable of doing. In forming an opinion of ourselves we are exposed to the full force of a powerful impulse of feeling. This impulse, acting as a bias, enters more or less distinctly into our single acts of introspection, into our attempts to recall our past doings, into our insights into the meaning of others' words and actions as related to ourselves (forming the natural disposition to enjoy flattery), and finally into our wild dreams as to our future achievements. It is thus the principal root of that gigantic illusion of self-conceit, which has long been recognized by practical sense as one of the greatest obstacles to social action; and by art as one of the most ludicrous manifestations of human weakness.

If there are all these openings for error in the beliefs we go on entertaining respecting individual things, including ourselves, there must be a yet larger number of such openings in those still more compound beliefs which we habitually hold respecting collections or classes of things. A single illusion of perception or of memory may suffice to give rise to a wholly illusory belief in a class of objects, for example, ghosts. The superstitious beliefs of mankind abundantly illustrate this complexity of the sources of error. And in the case of our everyday beliefs respecting real classes of objects, these sources contribute a considerable quota of error. We may again see this by examining our ordinary beliefs respecting our fellow-men.

A moment's consideration will show that our prevailing views respecting any section of mankind, say our fellow-countrymen, or mankind at large, correspond at best to a very loose process of reasoning. The accidents of our personal experience and opportunities of observation, the traditions which colored our first ideas, the influence of our dominant feelings in selecting for attention and retention certain aspects of the complex object, and in idealizing this object,—these sources of passive and active illusion must, to say the least, have had as much to do with our present solidified and seemingly "intuitive" knowledge as anything that can be called the exercise of individual judgment and reasoning power.

The force of this observation and the proof that such widely generalized beliefs are in part illusory, is seen in the fact that men of unlike experience and unlike temperament form such utterly dissimilar views of the same object. Thus, as Mr. Spencer has shown,* in looking at things national there may be not only a powerful patriotic bias at work in the case of the vulgar Philistine, but also a

distinctly anti-patriotic bias in the case of the over-fastidious seeker after culture. And I need hardly add that the different estimates of mankind held with equal assurance by the cynic, the misanthropist, and the philanthropic vindicator of his species, illustrate a like diversity of the psychological conditions of belief.

Finally, illusion may enter into that still wider collection of beliefs which make up our ordinary views of life and the world as a whole. Here there reflect themselves in the plainest manner the accidents of our individual experience and the peculiar errors to which our intellectual and emotional conformation disposes us. The world is for us what we feel it to be; and we feel it to be the cause of our particular emotional experience. Just as we have found that our environment helps to determine our idea of self and personal continuity, so, conversely, our inner experience, our remembered or imagined joys and sorrows throw a reflection on the outer world, giving it its degree of worth. Hence the contradictory, and consequently to some extent at least illusory, views of the optimist and the pessimist, "intuitions" which, I have tried to show elsewhere, are connected with deeply rooted habits of feeling, and are antecedent to all reasoned philosophic systems.

If proof were yet wanted that these wide-embracing beliefs may to some extent be illusory, it would be found in the fact that they can be distinctly colored by a temporary mood or mental tone. As I have more than once had occasion to remark, a feeling when present tends to color all the ideas of the time. And when out of sorts, moody, and discontented, a man is prone to find a large objective cause of his dissatisfaction in a world out of joint and not moving to his mind.

It is evident that all the permanent beliefs touched on in this chapter must constitute powerful predispositions with respect to any particular act of perception, insight, introspection, or recollection. In other words, these persistent beliefs, so far as individual or personal, are but another name for those fixed habits of mind which, in the case of each one of us, constitute our intellectual bias, and the source of the error known as personal equation. And it may be added that, just as these erroneous beliefs existing in the shape of fixed prejudices constitute a bias to new error, so they act as powerful resisting forces in relation to new truth and the correction of error.

In comparing these illusions of belief with those of perception and memory, we cannot fail to notice their greater compass or range, in other words, the greater extent of the region of fact misrepresented. Even if they are less forcible and irresistible than these errors, they clearly make up for this by the area which they cover.

Another thing to be observed with respect to these comprehensive beliefs is that where,

* *The Study of Sociology*, ch. ix.

as here, so many co-operant conditions are at work, the whole amount of common objective agreement is greatly reduced. In other words, individual peculiarities of intellectual conformation, emotional temperament, and experience have a far wider scope for their influence in these beliefs than they have in the case of presentative cognitions. At the same time, it is noteworthy that error much more rapidly propagates itself here than in the case of our perceptions or recollections. As we have seen, these beliefs all include much more than the results of the individual's own experience. They offer a large field for the influence of personal ascendancy of the contagion of sympathy, and of authority and tradition. As a consequence of this, the illusions of belief are likely to be far more persistent than those of perception or of memory; for not only do they lose that salutary process of correction which comparison with the experience of others affords, but they may even be strengthened and upheld to some extent by such social influences.

And here the question might seem to obtrude itself, whether, in relation to such a fluctuating mass of belief as that just reviewed, in which there appears to be so little common agreement, we can correctly speak of anything as objectively determinable. If illusion and error as a whole are defined by a reference to what is commonly held true and certain, what, it may be asked, becomes of the so-called illusions of belief?

This question will have to be fully dealt with in the following chapter. Here it may be sufficient to remark that amid all this apparent deviation of belief from a common standard of truth, there is a clear tendency to a rational consensus. Thought, by disengaging what is really matter of permanent and common cognition, both in the individual and still more in the class,* and fixing this quantum of common cognition in the shape of accurate definitions and universal propositions, is ever fighting against and restraining the impulses of individual imagination toward dissociation and isolation of belief. And this same process of scientific control of belief is ever tending to correct widespread traditional forms of error, and to erect a new and better standard of common cognition.

This scientific regulation of belief only fails where the experiences which underlie the conceptions are individual, variable, and subjective. Hence there is no definite common conception of the value of life and of the world, just because the estimate of this value must vary with individual circumstances, temperament, etc. All that can be looked for here in the way of a common standard or norm is a rough average estimate. And this common-sense judgment serves practically as a sufficient criterion of

* As a matter of fact, the proportion of accurate knowledge to error is far larger in the case of classes than of individuals. Propositions with general terms for subject are less liable to be faulty than propositions with singular terms for subject.

truth, at least in relation to such extreme one-sidedness of view as approaches the abnormal, that is to say, one of the two poles of irrational exaltation, or "joy-madness," and abject melancholy, which appear among the phenomena of mental disease.*

CHAPTER XII.

RESULTS.

THE foregoing study of illusions may not improbably have had a bewildering effect on the mind of the reader. To keep the mental eye, like the bodily eye, for any time intently fixed on one object is apt to produce a feeling of giddiness. And in the case of a subject like illusion, the effect is enormously increased by the disturbing character of the object looked at. Indeed, the first feeling produced by our survey of the wide field of illusory error might be expressed pretty accurately by the despondent cry of the poet—

"Alas! it is delusion all:
The future cheats us from afar,
Nor can we be what we recall,
Nor dare we think on what we are."

It must be confessed that our study has tended to bring home to the mind the wide range of the illusory and unreal in our intellectual life. In sense-perception, in the introspection of the mind's own feelings, in the reading of other's feelings, in memory, and finally in belief, we have found a large field for illusory cognition. And while illusion has thus so great a depth in the individual mind, it has a no less striking breadth or extent in the collective human mind. No doubt its grosser forms manifest themselves most conspicuously in the undisciplined mind of the savage and the rustic; yet even the cultivated mind is by no means free from its control. In truth, most of the illusions illustrated in this work are such as can be shared in by all classes of mind.

In view of this wide far-reaching area of ascertained error, the mind naturally asks, What are the real limits of illusory cognition, and how can we be ever sure of having got beyond them? This question leads us on to philosophical problems of the greatest consequence; problems which can only be very lightly touched in this place. Before approaching these, let us look back a little more carefully and gather up our results, reflect on the method which we have been unconsciously adopting, and inquire how far this scientific mode of procedure will take us

* For a description of each of these extremes of boundless gaiety and utter despondency, see Griesinger, *op. cit.*, Bk. III. ch. i. and ii. The relation of pessimism to pathological conditions is familiar enough; less familiar is the relation of unrestrained optimism. Yet Griesinger writes that among the insane "boundless hilarity," with "a feeling of good fortune," and a general contentment with everything, is as frequent as depression and repining (see especially p. 281, also pp. 64, 65).

in determining what is the whole range of illusory cognition.

We have found an ingredient of illusion mixed up with all the popularly recognized forms of immediate knowledge. Yet this ingredient is not equally conspicuous in all cases. First of all, illusion varies very considerably in its degree of force and persistence. Thus, in general, a presentative illusion is more coercive than a representative; an apparent reality present to the mind is naturally felt to be more indubitable than one absent and only represented. On the other hand, a representative illusion is often more enduring than a presentative, that is to say, less easily found out. It is to be added that a good deal of illusion is only partial, there being throughout an under-current of rational consciousness, a gentle play of self-criticism, which keeps the error from developing into a perfect self-delusion. This remark applies not only to the innocent illusions of art, but also to many of our every-day illusions, both presentative and representative. In many cases, indeed, as, for example, in looking at a reflection in a mirror, the illusion is very imperfect, remaining in the nascent stage.

Again, a little attention to the facts here brought together will show that the proportion of illusory to real knowledge is far from being the same in each class of immediate or quasi-immediate cognition. Thus, with respect to the great distinction between presentative and representative knowledge, it is to be observed that, in so far as any act of cognition is, strictly speaking, presentative, it does not appear to admit of error. The illusions of perception are connected with the representative side of the process, and are numerous just because this is so extensive. On the other hand, in introspection, where the scope of independent representation is so limited, the amount of illusion is very inconsiderable, and may in practice be disregarded. So again, to take a narrower group of illusions, we find that in the recalling of distant events the proportion of error is vastly greater than in the recalling of near events.

So much as to the extent of illusion as brought to light by our preceding study. Let us now glance at the conclusions obtained respecting its nature and its causes.

Causes of Illusion.—Looking at illusion as a whole, and abstracting from the differences of mental mechanism in the processes of perception, memory, etc., we may say that the *rationale* or mode of genesis of illusion is very much the same throughout. Speaking broadly, one may describe all knowledge as a correspondence of representation with fact or experience, or as a stable condition of the representation which cannot be disturbed by new experiences. It does not matter, for our present purpose, whether the fact represented is supposed to be directly present, as in presentative cognition; or to be absent, either as something past or future, or finally as a "general fact," that is to say, the group of

facts (past and future) embodied in a universal proposition.*

In general this accordance between our representations and facts is secured by the laws of our intellectual mechanism. It follows from the principles of association that our simple experiences, external and internal, will tend to reflect themselves in perception, memory, expectation, and general belief, in the very time-connections in which they actually occur. To put it briefly, facts which occur together will in general be represented together, and they will be the more perfectly co-represented in proportion to the frequency of this concurrence.

Illusion, as distinguished from correct knowledge, is, to put it broadly, deviation of representation from fact. This is due in part to limitations and defects in the intellectual mechanism itself, such as the imperfections of the activities of attention, discrimination, and comparison, in relation to what is present. Still more is it due to the control of our mental processes by association and habit. These forces, which are at the very root of intelligence, are also, in a sense, the originators of error. Through the accidents of our experience or the momentary condition of our reproductive power, representations get wrongly grouped with presentations and with one another; wrongly grouped, that is to say, according to a perfect or ideal standard, namely, that the grouping should always exactly agree with the order of experience as a whole, and the force of cohesion be proportionate to the number of the conjunctions of this experience.

This great source of error has been so abundantly illustrated under the head of Passive Illusions that I need not dwell on it further. It is plain that a passive error of perception, or of expectation, is due in general to a defective grouping of elements, to a grouping which answers, perhaps, to the run of the individual's actual experience, but not to a large and complete common experience.† Similarly, an illusory general belief is plainly a welding together of elements (here concepts, answering to innumerable representative images) in disagreement with the permanent connections of experience. Even a passive illusion of memory, in so far as it involves a rearrangement of successive representations, shows the same kind of defect.

In the second place, this incorrect grouping may be due, not to defects in attention and discrimination, combined with insufficiently grounded association, but to the independent play of constructive imagination and the caprices of feeling. This is illustrated in what I have called Active Illusions, whether

* It has been seen that, from a purely psychological point of view, even what looks at first like pure presentative cognition, as, for example, the recognition of a present feeling of the mind, involves an ingredient of representation.

† See especially what was said about the *rationale* of illusions of perception, p. 11.

the excited perceptions and the hallucinations of sense, or the fanciful projections of memory or of expectation. Here we have a force directly opposed to that of experience. Active illusion arises, not through the imperfections of the intellectual mechanism, but through a palpable interference with this mechanism. It is a regrouping of elements which simulates the form of a suggestion by experience, but is, in reality, the outcome of the individual mind's extra-intellectual impulses.

We see, then, that, in spite of obvious differences in the form, the process in all kinds of immediate cognition is fundamentally identical. It is essentially a bringing together of elements, whether similar or dissimilar and associated by a link of contiguity, and a viewing of these as connected parts of a whole; it is a process of synthesis. And illusion, in all its forms, is bad grouping or carelessly performed synthesis. This holds good even of the simplest kinds of error in which a presentative element is wrongly classed; and it holds good of those more conspicuous errors of perception, memory, expectation, and compound belief, in which representations connect themselves in an order not perfectly answering to the objective order.

This view of the nature and causes of illusion is clearly capable of being expressed in physical language. Bad grouping of psychical elements is equivalent to imperfect co-ordination of their physical, that is to say, nervous, conditions, imperfect in the evolutionist's sense, as not exactly according with external relations. So far as illusions of suggestion (passive illusions) are concerned, the error is connected with organized tendencies, due to a limited action of experience. On the other hand, illusions of preconception (active illusions) usually involve no such deeply fixed or permanent organic connections, but merely a temporary confluence of nerve-processes.* The nature of the physical process is best studied in the case of errors of sense-perception. Yet we may hypothetically argue that even in the case of the most complex errors, as those of memory and of belief, there is implied a deviation in the mode of connection of nervous structures (whether the connection be permanent or temporary) from the external order of facts.

And now we are in a position to see whether illusion is ultimately distinguishable from other modes of error, namely, those incident to conscious processes of reasoning. It must have been plain to an attentive reader throughout our exposition that, in spite of our provisional distinction, no sharp line can be drawn between much of what, on the surface, looks like immediate knowledge, and consciously derived or inferred knowledge. On its objective side, reasoning may be

roughly defined as a conscious transition of mind from certain facts or relations of facts to other facts or relations recognized as similar. According to this definition, a fallacy would be a hasty, unwarranted transition to new cases not identical with the old. And a good part of immediate knowledge is fundamentally the same, only that here, through the exceptional force of association and habit, the transition is too rapid to be consciously recognized. Consequently, illusion becomes identified at bottom with fallacious inference: it may be briefly described as collapsed inference. Thus, illusory perception and expectation are plainly a hasty transition of mind from old to new, from past to present, conjunctions of experience.* And, as we have seen, an illusory general belief owes its existence to a coalescence of representations of known facts or connections with products of imagination which simulate the appearance of inferences from these facts.

In the case of memory, in so far as it is not aided by reasoning from present signs, there seems to be nothing like a movement of inference. It is evident, indeed, that memory is involved in and underlies every such transition of thought. Illusions of memory illustrate rather a process of wrong classing, that is to say, of wrongly identifying the present mental image with past fact, which is the initial step in all inference. In this way they closely resemble those slight errors of perception which are due to erroneous classing of sense-impressions. But since the intellectual process involved in assimilating mental elements is very similar to that implied in assimilating complex groups of such elements, we may say that even in these simple kinds of error there is something which resembles a wrong classing of relations, something, therefore, which approximates in character to a fallacy.

By help of this brief review of the nature and causes of illusion, we see that in general it may be spoken of as deviation of individual from common experience. This applies to passive illusion in so far as it follows from the accidents of individual experience, and it still more obviously applies to active illusion as due to the vagaries of individual feeling and constructive imagination. We might,

* I say "usually," because, as we have seen, there may sometimes be a permanent and even an inherited predisposition to active illusion in the individual temperament and nervous organization.

* See what was said on the nature of passive illusions of sense (pp. 13, 19, 20, etc.). The logical character of illusion might be brought out by saying that it resembles the fallacy which is due to reasoning from an approximate generalization as though it were a universal truth. In thus identifying illusion and fallacy, I must not be understood to say that there is, strictly speaking, any such thing as an unconscious reasoning process. On the contrary, I hold that it is a contradiction to talk of any mental operation as altogether unconscious. I simply wish to show that, by a kind of fiction, illusion may be described as the result of a series of steps which, if separately unfolded to consciousness (as they no longer are), would correspond to those of a process of inference. The fact that illusion arises by a process of contraction out of conscious inference seems to justify this use of language, even apart from the fact that the nervous processes in the two cases are pretty certainly the same.

perhaps, characterize all illusion as partial view, partial both in the sense of being incomplete, and in the other sense of being that to which the mind by its peculiar predispositions inclines. This being so, we may very roughly describe all illusion as abnormal. Just as hallucination, the most signal instance of illusion, is distinctly on the border-land of healthy and unhealthy mental life; just as dreams are in the direction of such unhealthy mental action; so the lesser illusions of memory and so on are abnormal in the sense that they imply a departure from a common typical mode of intellectual action.

It is plain, indeed, that this is the position we have been taking up throughout our discussion of illusion. We have assumed that what is common and normal is true, or answers to what is objectively real. Thus, in dealing with errors of perception, we took for granted that the common percept—meaning by this what is permanent in the individual and the general experience—is at the same time the true percept. So in discussing the illusions of memory we estimated objective time by the judgment of the average man, free from individual bias, and apart from special circumstances favorable to error. Similarly, in the case of belief, true belief was held to be that which men in general, or in the long run, or on the average, hold true, as distinguished from what the individual under variable and accidental influences holds true. And even in the case of introspection we found that true cognition resolved itself into a consensus or agreement as to certain psychical facts.

Criterion of Illusion.—Now, it behoves us here to examine this assumption, with the view of seeing how far it is perfectly sound. For it may be that what is commonly held true does not in all cases strictly answer to the real, in which case our idea of illusion would have to be extended so as to include certain common beliefs. This question was partly opened up at the close of the last chapter. It will be found that the full discussion of it carries us beyond the scientific point of view altogether. For the present, however, let us see what can be said about it from that standpoint of positive science to which we have hitherto been keeping.

Now, if by common be meant what has been shared by all minds or the majority of minds up to a particular time, a moment's inspection of the process of correcting illusion will show that science assumes the possibility of a common illusion. In the history of discovery, the first assault on an error was the setting up of the individual against the society. The men who first dared to say that the sun did not move round the earth found to their cost what it was to fly in the face of a common, though illusory, perception of the senses.*

* If we turn from the region of physical to that of moral ideas, we see this historical collision between common and individual conviction in a yet more impressive form. The teacher of a new

If, however, by common be understood what is permanently and unshakably held true by men in proportion as their minds become enlightened, then science certainly does assume the truth of common perception and belief. Thus, the progress of the physical sciences may be described as a movement toward a new, higher, and more stable consensus of ideas and beliefs. In point of fact, the truths accepted by men of science already form a body of common belief for those who are supposed by all to have the means of testing the value of their convictions. And the same applies to the successive improvements in the conceptions of the moral sciences, for example, history and psychology. Indeed, the very meaning of science appears to be a body of common cognition to which all minds converge in proportion to their capabilities and opportunities of studying the particular subject-matter concerned.

Not only so, from a strictly scientific point of view it might seem possible to prove that common cognition, as defined above, must in general be true cognition. I refer here to the now familiar method of the evolutionist.

According to this doctrine, which is a scientific method in so far as it investigates the historical developments of mind or the order of mental phenomena in time, cognition may be viewed as a part of the result of the interaction of external agencies and the organism, as an incident of the great process of adaptation, physical and psychical, of organism to environment. In thus looking at cognition, the evolutionist is making the assumption which all science makes, namely, that correct views are correspondences between internal (mental) relations and external (physical) relations, incorrect views, disagreements between these relations. From this point of view he may proceed to argue that the intellectual processes must tend to conform to external facts. All correspondence, he tells us, means fitness to external conditions and practical efficiency, all want of correspondence practical incompetence. Consequently, those individuals in whom the correspondence was more complete and exact would have an advantage in the struggle for existence and so tend to be preserved. In this way the process of natural selection, by separately adjusting individual representations to actualities, would make them converge toward a common meeting-point or social standard of true cognition. That is to say, by eliminating or at least greatly circumscribing the region of individual illusion, natural selection would exclude the possibility of a persistent common illusion.

Not only so, the evolutionist may say that this coincidence between common beliefs and

moral truth has again and again been set down to be an illusionist by a society which was itself under the sway of a long-reigning error. As George Eliot observes, "What we call illusions are often, in truth, a wider vision of past and present realities—a willing movement of a man's soul with the large, sweep of the world's forces."

true beliefs would be furthered by social as well as individual competition. A community has an advantage in the struggle with other communities when it is distinguished by the presence of the conditions of effective co-operation, such as mutual confidence. Among these conditions a body of true knowledge seems to be of the first importance, since conjoint action always presupposes common beliefs, and, to be effective action, implies that these beliefs are correct. Consequently, it may be argued, the forces at work in the action of man on man, of society on the individual, in the way of assimilating belief, must tend, in the long run, to bring about a coincidence between representations and facts. Thus, in another way, natural selection would help to adjust our ideas to realities, and to exclude the possibility of anything like a permanent common error.

Yet once more, according to Mr. Herbert Spencer, the tendency to agreement between our ideas and the environment would be aided by what he calls the direct process of adaptation. The exercise of a function tends to the development of that function. Thus, our acts of perception must become more exact by mere repetition. So, too, the representations and concepts growing out of perceptions must tend to approximate to external facts by the direct action of the environment on our physical and psychical organism; for external relations which are permanent will, in the long run, stamp themselves on our nervous and mental structure more deeply and indelibly than relations which are variable and accidental.

It would seem, from all this, that so long as we are keeping to the scientific point of view, that is to say, taking for granted that there is something objectively real answering to our perceptions and conceptions, the question of the possibility of a universal or (permanently) common illusion does not arise. Yet a little more reflection will show us that it may arise in a way. So far as the logical sufficiency of the social consensus or common belief is accepted as scientifically proved, it is open to suspicion on strictly scientific grounds. The evolutionist's proof involves one or two assumptions which are not exactly true.

In the first place, it is not strictly correct to say that all illusion involves a practical unfitness to circumstances. At the close of our investigation of particular groups of illusion, for example, those of perception and memory, it was pointed out that many of the errors reviewed were practically harmless, being either momentary and evanescent, or of such a character as not to lead to injurious action. And now, by glancing back over the field of illusion as a whole, we may see the same thing. The day-dreams in which some people are apt to indulge respecting the remote future have little effect on their conduct. So, too, a man's general view of the world is often unrelated to his daily habits of life.

It seems to matter exceedingly little, in general, whether a person take up the geocentric or the heliocentric conception of the cosmic structure, or even whether he adopt an optimistic or pessimistic view of life and its capabilities.

So inadequate, indeed, does the agency of natural selection seem to be to eliminate illusion, that it may even be asked whether its tendency may not be sometimes to harden and fix rather than to dissolve and dissipate illusory ideas and beliefs. It will at once occur to the reader that the illusion of self-esteem, discussed in the last chapter, may have been highly useful as subserving individual self-preservation. In a similar way, it has been suggested by Schopenhauer that the illusion of the lover owes its force and historical persistence to its paramount utility for the preservation of the species. And to pass from a recurring individual to a permanently common belief, it is maintained by the same pessimist and his followers that what they regard as the illusion of optimism, namely, the idea that human life as a whole is good, grows out of the individual's irrational love of life, which is only the same instinctive impulse of self-preservation appearing as conscious desire. Once more, it has been suggested that the belief in free-will, even if illusory, would be preserved by the process of evolution, owing to its paramount utility in certain stages of moral development. All this seems to show at least the possibility of a kind of illusion which would tend to perpetuate itself, and to appear as a permanent common belief.

Now, so far as this is the case, so far as illusion is useful or only harmless, natural selection cannot, it is plain, be counted on to weed it out, keeping it within the narrow limits of the exceptional and individual. Natural selection gets rid of what is harmful only, and is indifferent to what is practically harmless.

It may, however, still be said that the process of direct adaptation must tend to establish such a consensus of true belief. Now, I do not wish for a moment to dispute that the growth of intelligence by the continual exercise of its functions tends to such a consensus: this is assumed to be the case by everybody. What I want to point out is that there is no scientific proof of this position.

The correspondence of internal to external relations is obviously limited by the modes of action of the environment on the organism; consequently by the structure of the organism itself. Scientific men are familiar with the idea that there may be forces in the environment which are practically inoperative on the organism, there being no corresponding mode of sensibility. And even if it be said that our present knowledge of the material world, including the doctrine of the conservation of energy, enables us to assert that there is no mode of force wholly unknown to us, it can still be contended that the environment

may, for aught we know, be vastly more than the forces of which, owing to the nature of our organism, we know it to be composed. In short, since, on the evolution theory viewed as a scientific doctrine, the real external world does not directly mirror itself in our minds, but only indirectly brings our perceptions and representations into adjustment by bringing into adjustment the nervous organism with which they are somehow connected, it is plain that we cannot be certain of adequately apprehending the external reality which is here assumed to exist.

Science, then, cannot prove, but must assume the coincidence between permanent common intuitions and objective reality. To raise the question whether this coincidence is perfect or imperfect, whether all common intuitions known to be persistent are true or whether there are any that are illusory, is to pass beyond the scientific point of view to another, namely, the philosophic. Thus, our study of illusion naturally carries us on from scientific to philosophic reflection. Let me try to make this still more clear.

Transition to Philosophic View.—All science makes certain assumptions which it never examines. Thus, the physicist assumes that when we experience a sensation we are acted on by some pre-existing external object which is the cause, or at least one condition, of the sensation. While resolving the secondary qualities of light, sound, etc., into modes of motion, while representing the object very differently from the unscientific mind, he agrees with this in holding to the reality of something external, regarding this as antecedent to and therefore as independent of the particular mind which receives the sense-impression. Again, he assumes the uniformity of nature, the universality of the casual relation, and so on.

Similarly, the modern psychologist, when confining himself within the limits of positive science, and treating mind phenomenally or empirically, or, in other words, tracing the order of mental states in time and assigning their conditions, takes for granted much the same as physical science does. Thus, as our foregoing analysis of perception shows, he assumes that there is an external cause of our sensations, that there are material bodies in space, which act on our sense-organs and so serve as the condition of our sense-impressions. More than this, he regards, in the way that has been illustrated in this work, the percept itself, in so far as it is a process in time, as the normal result of the action of such external agents on our nerve-structures, in other words, as the effect of such action in the case of the healthy and perfect nervous organism with the average organized dispositions, physical and psychical; in which case he supposes the percept to correspond, in certain respects at least, with the external cause as made known by physical science. And, on the other hand, he looks on a false or illusory percept as arising in another way

not involving, as its condition, the pre-existence of a corresponding material body or physical agent. And in this view of perception, as of other mental phenomena, the psychologist clearly takes for granted the principle that all mental events conform to the law of causation. Further, he assumes that the individual mind is somehow, in a way which it is not his province to inquire into, one and the same throughout, and so on.

The doctrine of evolution, too, in so far as scientific—that is, aiming at giving an account of the historical and pre-historical developments of the collective mind in time—agrees with psychology in making like assumptions. Thus, it conceives an external agency (the environment) as the cause of our common sensations and perceptions. That is to say, it represents the external world as somehow antecedent to, and so apparently independent of, the perceptions which are adjusted to it. And all this shows that science, while removed from vulgar unenlightened opinion, takes sides with popular thought in assuming the truth of certain fundamental ideas or so-called intuitive beliefs, into the exact meaning of which it does not inquire.

When the meaning of these assumptions is investigated, we pass out of the scientific into the philosophic domain. Philosophy has to critically investigate the data of popular thought and of science. It has to discover exactly what is implied in these fundamental principles. Then it has to test their value by erecting a final criterion of truth, by probing the structure of cognition to the bottom, and determining the proper organ of certain or accurate knowledge; or, to put it another way, it has to examine what is meant by reality, whether there is anything real independently of the mind, and if so, what. In doing this it inquires not only what common sense means by its object-world clothed in its variegated garment of secondary qualities, its beauty, and so on, but also what physical science means by its cosmic mechanism of sensible and extra-sensible matter in motion: whether there is any kind of objective reality belonging to the latter which does not also belong to the former; and how the two worlds are related one to another. That is to say, he asks whether the bodies in space assumed to exist by the physicist as the antecedent conditions of particular sensations and percepts are independent of mind and perception generally.*

In doing all this, philosophy is theoretically free to upset as much of popular belief of the persistent kind as it likes. Nor can science find fault with it so long as it keeps

* To make this account of the philosophic problem of the object-world complete, I ought to touch not only on the distinction between the vulgar and the scientific view of material things, but also on the distinction, within physical science, between the less and the more abstract view roughly represented by molar and molecular physics.

to its own sphere, and does not directly contradict any truth which science, by the methods proper to it, is able to establish. Thus, for example, if philosophy finds that there is nothing real independently of mind, science will be satisfied so long as it finds a meaning for its assumed entities, such as space, external things, and physical causes.*

The student of philosophy need not be told that these imposing-looking problems respecting cognition, making up what the Germans call the "Theory of Cognition," and the cognate problem respecting the nature of reality, are still a long way from being settled. Today, as in the days of Plato and Aristotle, are argued, in slightly altered forms, the vexed questions, What is true cognition? Is it a mere efflux from sensation, a passive conformity of representation to sensation (sensualism or empiricism)? or is it, on the other hand, a construction of active thought, involving certain necessary forms of intelligence (rationalism or intuitivism)?

Again, how are we to shape to ourselves real objective existence? Is it something wholly independent of the mind (realism)? and if so, is this known to be what we—meaning here common people and men of science alike—represent it as being (natural realism) or something different (transfigured realism)? Or is it, on the contrary, something involving mind (idealism)? and if so, is it a strictly phenomenal distinction within our conscious experience (empirical idealism, phenomenalism), or one of the two poles of subject and object constituted by every act of thought (rational idealism)? These are some of the questions in philosophy which still await their final answer.

Philosophy being thus still a question and not a solution, we need not here trouble ourselves about its problems further than to remark on their close connection with our special subject, the study of illusion.

Our brief reference to some of the principal inquiries of philosophy shows that it tends to throw doubt on things which the unreflecting popular mind holds to be indubitable. Different schools of philosophy have shown themselves unequally concerned about these so-called intuitive certainties. In general it may be said that philosophy, though, as I have remarked, theoretically free to set up its own standard of certainty, has in practice endeavored to give a meaning to, and to find a justification for the assumptions or first principles of science. On the other hand, it has not hesitated, when occasion required, to make very light of the intuitive beliefs of the popular mind as interpreted by itself. Thus, rationalists of the Platonic type have not shrunk from pronouncing individual impressions and objects illusory, an assertion which certainly seems to be opposed

to the assumptions of common sense, if not to those of science. On the other hand, the modern empirical or association school is quite ready to declare that the vulgar belief in an external world, so far as it represents this as independent of mind,* is an illusion; that the so-called necessary beliefs respecting identity, uniformity, causation, etc., are not, strictly speaking, necessary; and so on. And in these ways it certainly seems to come into conflict with popular convictions, or intuitive certainties, as they present themselves to the unreflecting intelligence.

Philosophy seems, then, to be a continuation of that process of detecting illusion with which science in part concerns itself. Indeed, it is evident that our special study has a very close connection with the philosophic inquiry. What philosophy wants is something intuitively certain as its starting-point, some *point d'appui* for its construction. The errors incident to the process of reasoning do not greatly trouble it, since these can, in general, be guarded against by the rules of logic. But error in the midst of what, on the face of it, looks like intuitive knowledge naturally raises the question, Is there any kind of absolutely certain cognition, any organ for the accurate perception of truth? And this intimate relation between the scientific and the philosophic consideration of illusion is abundantly illustrated in the history of philosophy. The errors of sense, appearing in a region which to the vulgar seems so indubitable, have again and again set men thinking on the question, "What is the whole range of illusion? Is perception, as popularly understood, after all, a big hallucination? Is our life a dream?"†

On the other hand, if our study of the wide range of illusion is fitted to induce that temper of mind which is said to be the beginning of philosophy, that attitude of universal doubt expressed by Descartes in his famous maxim, *De omnibus dubitandum*, a consideration of the process of correction is fitted to lead the mind on to the determination of the conditions of accurate knowledge. It is evident, indeed, that the very conception of an illusion implies a criterion of certainty: to call a thing illusory, is to judge it by

* I held, in spite of Berkeley's endeavors to reconcile his position with that of common sense, that the popular view does at least tend in this direction. That is to say, the every-day habit, when considering the external world, of abstracting from particular minds, leads on insensibly to that complete detachment of it from mind in general which expresses itself in the first stage of philosophic reflection, crude realism. The physicist appears to me, both from the first essays in Greek "nature-philosophy," as also from the not infrequent confusion even to-day between a perfectly safe "scientific materialism," and a highly questionable philosophic materialism, to share in this tendency to take separate consideration for separate existence. Each new stage of abstraction in physical science gives birth to a new attempt to find an independent reality, a thing-in-itself, hidden further away from sense.

† See the interesting autobiographical record of the growth of philosophic doubt in the *Première Méditation* of Descartes.

* For an excellent account of the distinction between the scientific and the philosophic point of view, see Mr. Shadworth Hodgson's *Philosophy of Reflection*, Bk. I. chs. i. and iii.; also Bk. III. chs. vii. and viii.

reference to some accepted standard of truth.

The mental processes involved in detecting, resisting, and overcoming illusion, are a very interesting subject for the psychologist, though we have not space here to investigate them fully. Turning to presentative, and more particularly sense-illusions, we find that the detection of an illusion takes place now by an appeal from one sense to another, for example, from sight to touch, by way of verification;* now (as in Myer's experiment) by a reference from sense and presentation altogether to representation or remembered experience and a process of reasoning; and now, (as in the illusions of art) conversely, by a transition of mind from what is suggested to the actual sense-impression of the moment. In the sphere of memory, again, illusion is determined, as such, now by attending more carefully to the contents of memory, now by a process of reasoning from some presentative cognition. Finally, errors in our comprehensive general representations of things are known to be such partly by reasoning from other conceptions, and partly by a continual process of reduction of representation to presentation, the general to the particular. I may add that the correction of illusion by an act of reflection and reasoning, which brings the part into consistent relation with the whole of experience, includes throughout the comparison of the individual with the collective or social experience.†

We may, perhaps, roughly summarize these operations by saying that they consist in the control of the lower automatic processes (association or suggestion) by the higher activities of conscious will. This activity of will takes the form now of an effort of attention to what is directly present to the mind (sense-impression, internal feeling, mnemonic image, etc.), now of conscious reflection, judgment, and reasoning, by which the error is brought into relation to our experience as a whole, individual and collective.

It is for the philosopher to investigate the inmost nature of these operations as they exhibit themselves in our every-day individual experience, and in the large intellectual movements of history. In no better way can he arrive at what common sense and science regard as certain cognition, at the kinds of knowledge on which they are wont to rely most unhesitatingly.

There is one other relation of our subject to philosophic problems which I have purposely left for final consideration. Our

* The appeal is not, as we have seen, invariably from sight to touch, but may be in the reverse direction, as in the recognition of the duality of the points of a pair of compasses, which seem one to the tactual sense.

† I might further remark that this "collective experience" includes previously detected illusions of ourselves and of others.

study has consisted mainly in the psychological analysis of illusions supposed to be known or capable of being known as such. Now, the modern association school professes to be able to resolve some of the so-called intuitions of common sense into elements exactly similar to those into which we have here been resolving what are acknowledged by all as illusions. This fact would seem to point to a close connection between the scientific study of illusion and the particular view of these fundamental intuitions taken by one philosophic school. In order to see whether there is really this connection, we must reflect a little further on the nature of the method which we have been pursuing.

I have already had occasion to use the expression "scientific psychology," or psychology as a positive science, and the meaning of this expression must now be more carefully considered. As a positive science, psychology is limited to the function of analyzing mental states, and of tracing their origin in previous and more simple mental states. It has, strictly speaking, nothing to do with the question of the legitimacy or validity of any mental act.

Take a percept, for example. Psychology can trace its parentage in sensation, the mode in which it has come by its contents in the laws of association. But by common consent, a percept implies a presentative apprehension of an object now present to sense. Is this valid or illusory? This question psychology, as science, does not attempt to answer. It would not, I conceive, answer it even if it were able to make out that the whole mental content in the percept can be traced back to elementary sensations and their combinations. For the fact that in the chemistry of mind elements may combine in perfectly new forms does not disprove that the forms thus arising, whether sentiments or quasi-cognitions, are invalid. Much less can psychology dispute the validity of a percept if it cannot be sure that the mind adds nothing to sensation and its grouping; that in the genesis of the perceptive state, with its intuition of something external and now present as object, nothing like a form of intelligence is superimposed on the elements of sensation, giving to the result of their coalescence the particular unity which we find. Whether psychology as a positive science can ever be sure of this: whether, that is to say, it can answer the question, "How do we come by the idea of object?" without assuming some particular philosophic or extra-scientific theory respecting the ultimate nature of mind, is a point which I purposely leave open.

I would contend, then, that the psychologist, in tracing the genesis of the percept out of previous mental experiences, no more settles the question, What is the object of perception? than the physicist settles it in referring the sense-impression (and so the percept) to a present material agent as its condition,

The same applies to our idea of self. I may discover the concrete experiences which supply the filling in of the idea, and yet not settle the question, Does intelligence add anything in the construction of the form of this idea? and still less settle the question whether there is any real unity answering to the idea.

If this is a correct distinction, if psychology, as science, does not determine questions of validity or objective meaning but only of genesis, if it looks at mental states in relation only to their temporal and causal concomitants and not to their objects, it must follow that our preceding analysis of illusion involves no particular philosophic theory as to the nature of intelligence, but, so far as accurate, consists of scientific facts which all philosophic theories of intelligence must alike be prepared to accept. And I have little doubt that each of the two great opposed doctrines, the intuitive and the associational, would claim to be in a position to take up these facts into its particular theory, and to view them in its own way.

But in addition to this scientific psychology, there is another so-called psychology, which is, strictly speaking, philosophic. This, I need hardly say, is the associationist philosophy. It proceeds by analyzing certain cognitions and sentiments into their elements, and straightway declaring that they mean nothing more than these. That is to say, the associationist passes from genesis to validity, from the history of a conscious state to its objective meaning. Thus, from showing that an intuitive belief, say that in causation, is not original (in the individual or at least in the race), it goes on to assert that it is not a valid immediate cognition at all. Now, I am not concerned here to inquire into the logical value of this transition, but simply to point out that it is extra-scientific and distinctly philosophic. If logically justifiable it is so because of some plainly *philosophic* assumption, as that made by Hume, namely, that all ideas not derived from impressions are to this extent fictitious or illusory.

And now we are in a position to understand the bearing of our scientific analysis of acknowledged illusions on the associationist's treatment of the alleged illusions of common sense. There is no doubt, I think, that some of the so-called intuitions of common sense have points of analogy to acknowledged illusions. For example, the conviction in the act of perception that something external to the mind and independent of it exists, has a certain superficial resemblance to an hallucination of sense; and moreover, the associationist seeks to explain it by means of these very processes which underlie what is recognized by all as sense-illusion.* Again, it may be said that our notions of force and of a causal nexus in the physical

world imply the idea of conscious energy as known through our muscular sensations, and so have a suspicious resemblance to those anthropomorphic illusions of which I have spoken under Illusions of Insight. Once more, the consciousness of freedom may, as I have suggested, be viewed as analogous in its form and its mode of origin to illusions of introspection. As a last example, it may be said that the mind's certain conviction of the innateness of some of its ideas resembles those illusions of memory which arise through an inability to think ourselves back into a remote past having a type of consciousness widely unlike that of the present.

But now, mark the difference. In our scientific analysis of popularly known illusions, we had something by which to determine the illusory character of the presentation or belief. We had a popularly or scientifically accepted standard of certainty, by a reference to which we might test the particular *soi-disant* cognition. But in the case of these fundamental beliefs we have no such criterion, except we adopt some particular philosophic theory, say that of the associationist himself. Hence this similarity in structure and origin cannot in itself be said to amount to a proof of equality of logical or objective value. Here again it must be remarked that origin does not carry validity or invalidity with it.*

We thus come back to our starting-point. While there are close relations, psychological and logical, between the scientific study of the ascertained facts of illusion and the philosophic determination of what is illusory in knowledge as a whole, the two domains must be clearly distinguished. On purely scientific ground we cannot answer the question, "How far does illusion extend?" The solution of this question must be handed over to the philosopher, as one aspect of his problem of cognition.

One or two remarks may, perhaps, be hazarded in concluding this account of the relation of the scientific to the philosophic problem of illusion. Science, as we have seen, takes its stand on a stable consensus, a body of commonly accepted belief. And this being so, it would seem to follow, that

* It only seems to do so, apart from philosophic assumptions, in certain cases where experience testifies to a uniform untrustworthiness of the origin. For example, we may, on grounds of matter of fact and experience, be disposed to distrust any belief that we recognize as springing from an emotional source, from the mind's feelings and wishes.

I may add that a so-called intuitive belief may refer to a matter of fact which can be tested by the facts of experience and by scientific methods. Thus, for example, the old and now exploded form of the doctrine of innate ideas, which declared that children were born with certain ideas ready made, might be tested by observation of childhood, and reasoning from its general intellectual condition. The same applies to the physiological theories of space-perception, supposed to be based on Kant's doctrine, put forward in Germany by Johannes Müller and the "nativistic school." (See my exposition and criticism of these doctrines in *Mind*, April, 1878, pp. 168-178 and 193-195.)

* M. Taine frankly teaches that what is commonly called accurate perception is a "true hallucination" (*De l'Intelligence*, 2ième partie, Livre I. ch. 1. sec. 3).

so far as she is allowed to interest herself in philosophic questions, she will naturally be disposed to ask, What beliefs are shared in by all minds, so far as normal and developed? In other words, she will be inclined to look at universality as the main thing to be determined in the region of philosophic inquiry. The metaphysical skeptic, fond of daring exploits, may break up as many accepted ideas as he likes into illusory *débris*, provided only he has some bit of reality left to take his stand on. Meanwhile, the scientific mind, here agreeing with the practical mind, will ask, "Will the beliefs thus said to be capable of being shown to be illusory ever cease to exercise their hold on men's minds, including that of the iconoclast himself? Is the mode of demonstration of such a kind as to be likely ever to materially weaken the common-sense 'intuition'?"

This question would seem to be most directly answerable by an appeal to individual testimony. Viewed in this light, it is a question for the present, for some few already allege that in their case philosophic reasonings exercise an appreciable effect on these beliefs. And so far as this is so, the man of scientific temper will feel that there is a question for him.

It is evident, however, that the question of the persistence of these fundamental beliefs is much more one for the future than for the present. The correction of a clearly detected illusion is, as I have more than once remarked, a slow process. An illusion such as the apparent movement of the sun will persist as a partially developed error long after it has been convicted. And it may be that the fundamental beliefs here referred to, even if presumably illusory, are destined to exercise their spell for long ages yet.

Whether this will be the case or not, whether these intuitive beliefs are destined slowly to decay and be dissolved as time rolls on, or whether they will retain an eternal youth, is a question which we of to-day seem, on a first view of the matter, to have no way of answering which does not assume the very point in question—the truth or falsity of the belief. This much may, however, be said. The associationist who resolves these erroneous intuitions into the play of association, admits that the forces at work generating and consolidating the illusory belief are constant and permanent forces, and such as are not likely to be less effective in the future than they have been in the past. Thus, he teaches that the intuition of the single object in the act of perception owes its strength to "inseparable association," according to which law the ideas of the separate "possibilities of sensation," which are all we know of the object, coalesce in the shape of an idea of a single uniting substance. He adds, perhaps, that heredity has tended, and will still tend, to fix the habit of thus transforming an actual multiplicity into an imaginary unity. And in thus arguing, he is allowing that the illusion is one which, to say the least of it, it

will always be exceedingly difficult for reason to dislodge.

In view of this uncertainty, and of the possibility, if not the probability, of these beliefs remaining as they have remained, at least approximately universal, the man of science will probably be disposed to hold himself indifferently to the question. He will be inclined to say, "What does it matter whether you call such an apparently permanent belief the correlative of a reality or an illusion? Does it make any practical difference whether a universal 'intuition,' of which we cannot rid ourselves, be described as a uniformly recurring fiction of the imagination, or an integral constitutive factor of intelligence? And, in considering the historical aspect of the question, does it not come to much the same thing whether such permanent mental products be spoken of as the attenuated forms or ghostly survivals of more substantial primitive illusions (for example, anthropomorphic representations of material objects, 'animistic' representations of mind and personality), or as the slowly perfected results of intellectual evolution?"

This attitude of the scientific mind toward philosophic problems will be confirmed when it is seen that those who seek to resolve stable common convictions into illusions are forced, by their very mode of demonstration, to allow these intuitions a measure of validity. Thus, the ideas of the unity and externality attributed to the object in the act of perception are said by the associationist to answer to a matter of fact, namely, the permanent coexistence of certain possibilities of sensation, and the dependence of the single sensations of the individual on the presence of the most permanent of these possibilities, namely, those of the active or muscular and passive sensations of touch, which are, moreover, by far the most constant for all minds. Similarly, the idea of a necessary connection between cause and effect, even if illusory in so far as it expresses an *objective* necessity, is allowed to be true as an expression of that uniformity of our experience which all scientific progress tends to illustrate more and more distinctly. And even the idea of a permanent self, as distinct from particular fugitive feelings, is admitted by the associationist to be correct in so far as it expresses the fact that mind is "a series of feelings which is aware of itself as past and future." In short, these "illusory intuitions," by the showing of those who affirm them to be illusory, are by no means hallucinations having no real object as their correlative, but merely illusions in the narrow sense, and illusions, moreover, in which the ratio of truth to error seems to be a large one.

It would thus appear that philosophy tends, after all, to unsettle what appear to be permanent convictions of the common mind and the presuppositions of science much less than is sometimes imagined. Our intuitions of external realities, our indestructible belief in the uniformity of nature,

in the nexus of cause and effect, and so on, are, by the admission of all philosophers, at least partially and *relatively* true; that is to say, true in relation to certain features of our common experience. At the worst, they can only be called illusory as slightly misrepresenting the exact results of this experience. And even so, the misrepresentation must, by the very nature of the case, be practically insignificant. And so in full view of the subtleties of philosophic speculation, the man of science may still feel justified in regarding his standard of truth, a stable consensus of belief, as above suspicion.

NOTE.*

THE HYPNOTIC CONDITION.

I HAVE not in this chapter discussed the relation of dreaming to hypnotism, or the state of artificially-produced quasi-sleep, because the nature of this last is still but very imperfectly understood. In this condition, which is induced in a number of ways by keeping the attention fixed on some non-exciting object, and by weak continuous and monotonous stimulation, as stroking the skin, the patient can be made to act conformably to the verbal or other suggestion of the operator, or to the bodily position which he is made to assume. Thus, for example, if a glass containing ink is given to him, with the command to drink, he proceeds to drink. If his hands are folded, he proceeds to act as if he were in church, and so on.

Braid, the writer who did so much to get at the facts of hypnotism, and Dr. Carpenter, who has helped to make known Braid's careful researches, regard the actions of the hypnotized subject as analogous to ideomotor movements; that is to say, the movements due to the tendency of an idea to act itself out apart from volition. On the other hand, one of the latest inquirers into the subject, Professor Heidenhain, of Breslau, appears to regard these actions as the outcome of "unconscious perceptions" (*Animal Magnetism*, English translation, p. 43, etc.).

In the absence of certain knowledge, it seems allowable to argue from the analogy of natural sleep that the actions of the hypnotized patient are accompanied with the lower forms of consciousness, including sensation and perception, and that they involve dream-like hallucinations respecting the external circumstances of the moment. Regarding them in this light, the points of resemblance between hypnotism and dreaming are numerous and striking. Thus, Dr. Heidenhain tells us that the threshold or liminal value of stimulation is lowered just as in ordinary sleep sense-activity as a whole is lowered. According to Professor Weinhold, the hypnotic condition begins in a gradual loss of taste, touch, and the sense of temperature;

then sight is gradually impaired, while hearing remains throughout the least interfered with.* In this way, the mind of the patient is largely cut off from the external world, as in sleep, and the power of orientation is lost. Moreover, there are all the conditions present, both positive and negative, for the hallucinatory transformation of mental images into percepts just as in natural sleep. Thus, the higher centers connected with the operations of reflection and reasoning are thrown *hors de combat*, or, as Dr. Heidenhain has it, "inhibited."

The condition of hypnotism is marked off from that of natural sleep, first of all, by the fact that the accompanying hallucinations are wholly due to external suggestion (including the effects of bodily posture). Dreams may, as we have seen, be very faintly modified by external influences, but during sleep there is nothing answering to the perfect control which the operator exercises over the hypnotized subject. The largest quantity of our "dream-stuff" comes, as we have seen, from within and not from without the organism. And this fact accounts for the chief characteristic difference between the natural and the hypnotic dream. The former is complex, consisting of crowds of images, and continually changing: the latter is simple, limited, and persistent. As Braid remarks, the peculiarity of hypnotism is that the attention is concentrated on a remarkably narrow field of mental images and ideas. So long as a particular bodily posture is assumed, so long does the corresponding illusion endure. One result of this, in connection with that impairing of sensibility already referred to, is the scope for a curious overriding of sense-impressions by the dominant illusory percept, a process that we have seen illustrated in the active sense-illusions of waking life. Thus, if salt water is tasted and the patient is *told* that it is beer, he complains that it is sour.

In being thus in a certain rapport, though so limited and unintelligent a rapport, with the external world, the mind of the hypnotized patient would appear to be nearer the condition of waking illusion than is the mind of the dreamer. It must be remembered, however, and this is the second point of difference between dreaming and hypnotism, that the hypnotized subject tends to *act out* his hallucinations. His quasi-percepts are wont to transform themselves into actions with a degree of force of which we see no traces in ordinary sleep. Why there should be this greater activity of the motor organs in the one condition than in the other, seems to be a point as yet unexplained. All sense-impressions and percepts are doubtless accompanied by some degree of impulse to movement, though, for some reason or another, in natural and healthy sleep these impulses are restricted to the stage of faint

* See an interesting account of "Recent Researches on Hypnotism," by G. Stanley Hall, in *Mind*, January, 1881.

* Note to Chapter VII.

nascent stirrings of motor activity which hardly betray themselves externally. This difference, involving a great difference in the possible practical consequences of the two conditions of natural and hypnotic sleep, clearly serves to bring the latter condition nearer to that of insanity than the former condition is brought. A strong susceptibility to the hypnotic influence, such as Dr. Heidanhain describes might, indeed, easily prove a very serious want of "adaptation of internal to external relations," whereas a tendency to dreaming would hardly prove a maladaptation at all.

Beacon Lights OF Science

THE BLACK DEATH

AN ACCOUNT OF THE DEADLY PESTILENCE OF THE FOURTEENTH CENTURY

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PREFACE.

WE here find an important page of the history of the world laid open to our view. It treats of a convulsion of the human race, unequaled in violence and extent. It speaks of incredible disasters, of despair and unbridled demoniacal passions. It shows us the abyss of general licentiousness, in consequence of a universal pestilence, which extended from China to Iceland and Greenland.

The inducement to unveil this image of an age, long since gone by, is evident. A new pestilence [the Cholera] has attained almost an equal extent, and though less formidable, has partly produced, partly indicated, similar phenomena. Its causes, and its diffusion over Asia and Europe, call on us to take a comprehensive view of it, because it leads to an insight into the organism of the world, in which the sum of organic life is subject to the great powers of Nature.

Now, human knowledge is not yet sufficiently advanced, to discover the connection between the processes which occur above, and those which occur below, the surface of the earth, or even fully to explore those laws of nature, an acquaintance with which would be required; far less to apply them to great phenomena, in which one spring sets a thousand others in motion.

On this side, therefore, such a point of view is not to be found, if we would not lose ourselves in the wilderness of conjectures, of which the world is already too full: but it may be found in the ample and productive field of historical research.

History—that mirror of human life in all its bearings, offers, even for general pestilences, an inexhaustible, though scarcely explored, mine of facts; here too it asserts its dignity, as the philosophy of reality delighting in truth.

It is conformable to its spirit to

conceive general pestilences as events affecting the whole world—to explain their phenomena by the comparison of what is similar. Thus the facts speak for themselves, because they appear to have proceeded from those higher laws which govern the progression of the existence of mankind. A cosmical origin and convulsive excitement, productive of the most important consequences among the nations subject to them, are the most striking features to which history points in all general pestilences. These, however, assume very different forms, as well in their attacks on the general organism, as in their diffusion; and in this respect a development from form to form, in the course of centuries, is manifest, so that the history of the world is divided into grand periods in which positively defined pestilences prevailed. As far as our chronicles extend, more or less certain information can be obtained respecting them.

But this part of medical history, which has such a manifold and powerful influence over the history of the world, is yet in its infancy. For the honor of that science which should everywhere guide the actions of mankind, we are induced to express a wish, that it may find room to flourish amidst the rank vegetation with which the field of German medical science is unhappily encumbered.

CHAPTER I.

GENERAL OBSERVATIONS.

THAT Omnipotence which has called the world with all its living creatures into one animated being, especially reveals himself in the desolation of great pestilences. The powers of creation come into violent collision; the sultry dryness of the atmosphere; the subterraneous thunders; the mist of overflowing waters, are the harbingers of destruction. Nature is not satisfied with the ordinary alternations of life and death,

and the destroying angel waves over man and beast his flaming sword.

These revolutions are performed in vast cycles, which the spirit of man, limited, as it is; to a narrow circle of perception, is unable to explore. They are, however, greater terrestrial events than any of those which proceed from the discord, the distress, or the passions of nations. By annihilations they awaken new life; and when the tumult above and below the earth is past, nature is renovated, and the mind awakens from torpor and depression to the consciousness of a higher destiny.

Were it in any degree within the power of human research to draw up, in a vivid and connected form, an historical sketch of such mighty events, after the manner of the historians of wars and battles, and the migrations of nations, we might then arrive at clear views with respect to the mental development of the human race, and the ways of Providence would be more plainly discernible. It would then be demonstrable, that the mind of nations is deeply affected by the destructive conflict of the powers of nature, and that great disasters lead to striking changes in general civilization. For all that exists in man, whether good or evil, is rendered conspicuous by the presence of great danger. His inmost feelings are roused—the thought of self-preservation masters his spirit—self-denial is put to severe proof, and wherever darkness and barbarism prevail, there the affrighted mortal flies to the idols of his superstition, and all laws, human and divine, are criminally violated.

In conformity with a general law of nature, such a state of excitement brings about a change, beneficial or detrimental, according to circumstances, so that nations either attain a higher degree of moral worth, or sink deeper in ignorance and vice. All this, however, takes place upon a much grander scale than through the ordinary vicissitudes of war and peace, or the rise and fall of empires, because the powers of nature themselves pro-

duce plagues, and subjugate the human will, which, in the contentions of nations, alone predominates.

CHAPTER II.

THE DISEASE.

THE most memorable example of what has been advanced, is afforded by a great pestilence of the fourteenth century, which desolated Asia, Europe, and Africa, and of which the people yet preserve the remembrance in gloomy traditions. It was an oriental plague, marked by inflammatory boils and tumors of the glands, such as break out in no other febrile disease. On account of these inflammatory boils, and from the black spots, indicative of a putrid decomposition, which appeared upon the skin, it was called in Germany and in the northern kingdoms of Europe, *the Black Death*, and in Italy, *la Mortalega Grande, the Great Mortality*.* Few testimonies are presented to us respecting its symptoms and its course, yet these are sufficient to throw light upon the form of the malady, and they are worthy of credence, from their co-incidence with the signs of the same disease in modern times.

The imperial author, Cantacuzenus,†

* *La Mortalega Grande. Matth. de Griffonibus. apud Muratori, Script. rer. Italicar. T. XVIII. p. 167. D.* It was called by others *Anguinalgia. Andr. Gratiol. Discorso di Peste. Venet. 1576. 4to.* Swedish: *Digerdöden. Loccenii Histor. Suecan. L. III. p. 104.*—Danish: *den sorte Dod. Pontan. Rer. Danicar. Histor. L. VIII. p. 476. Amstelod. 1631, fol.* Icelandic: *Svartur Dandi. Saabye, Tagebuch in Grönland. Introduction XVIII. Mansa, de Epidemiis maxime memorabilibus, quæ in Dania grassatæ sunt, &c. Part I. p. 12. Havniæ, 1831-8.*—In Westphalia the name of *de groete Doet* was prevalent. *Meibom.*

† *Joann. Cantacuzen. Historiar. L. IV. c. 8. Ed. Paris, p. 730. 5.* The ex-emperor has indeed copied some passages from Thucydides, as *Sprengel* justly observes (*Beiträge zur Geschichte der Medicin. Vol. I. p. 73*), though this was most probably only for the sake of rounding a period. This is no detri-

whose own son, Andronicus, died of this plague in Constantinople, notices great imposthumes* of the thighs and arms of those affected, which, when opened, afforded relief by the discharge of an offensive matter. Buboës, which are the infallible signs of the oriental plague, are thus plainly indicated, for he makes separate mention of smaller boils on the arms and in the face, as also in other parts of the body, and clearly distinguishes these from the blisters,† which are no less produced by plague in all its forms. In many cases, black spots ‡ broke out all over the body, either single, or united and confluent.

These symptoms were not all found in every case. In many one alone was sufficient to cause death, while some patients recovered, contrary to expectation, though afflicted with all. Symptoms of cephalic affection were frequent; many patients became stupefied and fell into a deep sleep, losing also their speech from palsy of the tongue. [This mention of palsy of the tongue as a symptom in the Black Death, occurs also in Procopius's account of the plague in the 6th century, where it is said to be a sequel of the plague, so that patients who recovered, thereafter as long as they lived stuttered in their speech, or could utter only inarticulate sounds.] Others remained sleepless and without rest. The fauces and tongue were black, and as if suffused with blood; no beverage would assuage their burning thirst, so that their sufferings continued without alleviation until terminated by death, which many in their despair accelerated with their own hands. Contagion was evident, for attendants caught the disease of their relations and friends, and many houses in the capital were bereft even of their last inhabitant. Thus far only the usual symptoms of the oriental plague appeared. Still deeper sufferings, how-

ment to his credibility, because his statements accord with the other accounts.

* Ἀποστάσεις μεγάλαι.

† Μελαίναι φλυκτίδες.

‡ ὤσπερ στίγματα μέλανα.

ever, were connected with this pestilence, such as have not been felt at other times; the organs of respiration were seized with a putrid inflammation; a violent pain in the chest attacked the patient; blood was expectorated, and the breath diffused a pestiferous odor.

In the West, the following were the predominating symptoms on the eruption of this disease.* An ardent fever, accompanied by an evacuation of blood, proved fatal in the first three days. It appears that buboes and inflammatory boils did not at first come out at all, but that the disease, in the form of [pestilential] affection of the lungs, completed the destruction of life before the other symptoms were developed. Thus did the plague rage in Avignon for six or eight weeks, and the pestilential breath of the sick, who expectorated blood, caused a terrible contagion far and near; for even the vicinity of those who had fallen ill of plague was certain death;† so that parents abandoned their infected children, and all the ties of kindred were dissolved. After this period, buboes in the axilla and in the groin, and inflammatory boils all over the body, made their appearance; but it was not until seven months afterward that some patients recovered with matured buboes, as in the ordinary milder form of plague. Such is the report of the courageous Guy de Chauliac, who vindicated the honor of medicine, by bidding defiance to danger; boldly and constantly assisting the affected, and disdaining the excuse of his colleagues, who held the Arabian notion, that medical aid was unavailing, and that the contagion justified flight. He saw the plague twice in Avignon, first in the year 1348, from January to August,

and then twelve years later, in the autumn, when it returned from Germany, and for nine months spread general distress and terror. The first time it raged chiefly among the poor, but in the year 1360, more among the higher classes. It now also destroyed a great many children, whom it had formerly spared, and but few women.

The like was seen in Egypt.* Here also inflammation of the lungs was predominant, and destroyed quickly and infallibly, with burning heat and expectoration of blood. Here too the breath of the sick spread a deadly contagion, and human aid was as vain as it was fatal to those who approached the infected.

Boccaccio, who was an eye-witness of its incredible fatality in Florence, the seat of the revival of science, gives a more lively description of the attack of the disease than his non-medical contemporaries.†

It commenced here, not, as in the East, with bleeding at the nose, a sure sign of inevitable death; but there took place at the beginning, both in men and women, tumors in the groin and in the axilla, varying in circumference up to the size of an apple or an egg, and called by the people pest-boils (*gavoccioli*). Then there appeared similar tumors indiscriminately over all parts of the body, and black or blue spots came out on the arms or thighs, or on other parts, either single and large, or small and thickly studded. These spots proved equally fatal with the pest-boils, which had been from the first regarded as a sure sign of death. No power of medicine brought relief—almost all died within the first three days, some sooner, some later, after the appearance of these signs, and for the most part entirely without fever or other symptoms. The plague spread with the greater fury, as it communicated from the sick to the healthy, like fire among dry and oily fuel, and even contact with the clothes and

* *Guidon de Cauliac* Chirurgia. Tract II. c. 5. p. 113. Ed. Lugdun. 1572.

† Et fuit tantæ contagiositatis specialiter quæ fuit cum sputo sanguinis, quod non solum morando, sed etiam inspiciendo unus recipiebat ab alio: intantum quod gentes moriebantur sine servitoribus, et sepeliebantur sine sacerdotibus, pater non visitabat filium, nec filius patrem: charitas erat mortua, spes prostrata.

* *Deguignes*, Histoire générale des Huns, des Turcs, des Mongols, etc. Tom. IV. Paris, 1758. 4to. p. 226.

† Decameron. Giorn. I. Introd.

other articles which had been used by the infected seemed to convey the disease. Not only men, but animals, fell sick and shortly expired, if they had touched things belonging to the diseased or dead. Thus Boccaccio himself saw two hogs on the rags of a person who had died of plague, after staggering about for a short time, fall down dead, as if they had taken poison. In other places multitudes of dogs, cats, fowls, and other animals, fell victims to the contagion;* and it is to be presumed that other epizootics likewise were developed, although the ignorant writers of the fourteenth century are silent on this point.

In Germany there was a repetition in every respect of the same phenomena. The infallible signs of the oriental bubo-plague with its inevitable contagion were found there as everywhere else; but the mortality was not nearly so great as in the other parts of Europe.† The accounts do not all make mention of the spitting of blood, the diagnostic symptom of this fatal pestilence; we are not, however, thence to conclude that there was any considerable mitigation or modification of the disease, for we must not only take into account the defectiveness of the chronicles, but that isolated testimonies are often contradicted by many others. Thus, the chronicles of Strasburg, which only take notice of boils and glandular swellings in the axillæ and groins,‡ are opposed by another account, according to which the mortal spitting of blood was met with in Germany; § but this is rendered sus-

picious, as the narrator postpones the death of those who were thus affected, to the sixth, and (even the) eighth day, whereas no other author sanctions so long a course of the disease; and even in Strasburg, where a mitigation of the plague may, with most probability, be assumed, since in the year 1349 only 16,000 people were carried off, the generality expired by the third or fourth day.* In Austria, and especially in Vienna, the plague was fully as malignant as anywhere, so that the patients who had red spots and black boils, as well as those afflicted with tumid glands, died about the third day;† and lastly, very frequent sudden deaths occurred on the coasts of the North Sea and in Westphalia, without any further development of the malady.‡

To France, this plague came in a northern direction from Avignon, and was there more destructive than in Germany, so that in many places not more than two in twenty of the inhabitants survived. Many were struck, as if by lightning, and died on the spot, and this more frequently among the young and strong than the old; patients with enlarged glands in the axillæ and groins scarcely survived two or three days; and no sooner did these fatal signs appear, than they bid adieu to the world, and sought consolation only in the absolution which Pope Clement VI. promised them in the hour of death.§

In England the malady appeared, as at Avignon, with spitting of blood, and with the same fatality, so that the sick who were afflicted either with this symptom or with vomiting of blood, died in some cases immediately, in others within twelve hours, or at the

* *Auger. de Biterris*, Vitæ Romanor. pontificum, apud *Muratorii*, Scriptor. rer. Italic. Vol. III. Pt. II. p. 556.

† *Contin. altera Chronici Guillelmi de Nangis in d'Acher*, Spicilegium sive Collectio Veterum Scriptorum, etc. Ed. de la Barre, Tom. III. p. 110.

‡ "The people all died of boils and inflamed glands which appeared under the arms and in the groins." *Jac. v. Königshoven*, the oldest Chronicle of Alsace and Strasburg, and indeed of all Germany. Strasburg, 1698. 4. cap. 5, § 86. p. 301.

§ *Hainr. Rebendorff*, Annales, apud *Marq. Freher*. Germanicarum rerum Scriptores. Francof. 1624. fol. p. 439.

* *Königshoven*, in loc. cit.

† *Anonym. Leobiens. Chron. L. VI. in Hier. Pez*, Scriptor. rer. Austriac. Lips. 1741. fol. Tom. I. p. 970. The above-named appearances are here called, *rote sprinkel*, *swarce erhubenn* und *druesz under den üchsen und ze den gemächten*.

‡ *Ubb. Emmii* Rer. Frisiacar. histor. L. XIV. p. 203. Lugd. Bat. 1616. fol.

§ *Guillelmus de Nangis*, loc. cit.

latest, in two days.* The inflammatory boils and buboes in the groins and axillæ were recognized at once as prognosticating a fatal issue, and those were past all hope of recovery in whom they arose in numbers all over the body. It was not till toward the close of the plague that they ventured to open, by incision, these hard and dry boils, when matter flowed from them in small quantity, and thus by compelling nature to a critical suppuration, many patients were saved. Every spot which the sick had touched, their breath, their clothes, spread the contagion; and, as in all other places, the attendants and friends who were either blind to their danger or heroically despised it, fell a sacrifice to their sympathy. Even the eyes of the patient were considered as sources of contagion,† which had the power of acting at a distance, whether on account of their unwonted luster or the distortion which they always suffer in plague, or whether in conformity with an ancient notion, according to which the sight was considered as the bearer of a demoniacal enchantment. Flight from infected cities seldom availed the fearful, for the germ of the disease adhered to them, and they fell sick, remote from assistance, in the solitude of their country houses.

Thus did the plague spread over England with unexampled rapidity, after it had first broken out in the county of Dorset, whence it advanced through the counties of Devon and Somerset, to Bristol, and thence reached Gloucester, Oxford, and London. Probably few places escaped, perhaps not any; for the annals of contemporaries report that throughout the land only a tenth part of the inhabitants remained alive.‡

* *Ant. Wood*, *Historia et Antiquitates Universit. Oxoniens.* Oxon. 1764. fol. L. 1. p. 172.

† *Mezeray*, *Histoire de France.* Paris, 1685. fol. T. II. p. 418.

‡ *Barnes*, who has given a lively picture of the black plague, in England, taken from the Registers of the 14th century, describes the external symptoms in the following terms: knobs or swellings in the groin or under the

From England the contagion was carried by a ship to Bergen, the capital of Norway, where the plague then broke out in its most frightful form, with vomiting (or rather coughing) of blood; and throughout the whole country, spared not more than a third of the inhabitants. The sailors found no refuge in their ships; and vessels were often seen driving about on the ocean and drifting on shore, whose crews had perished to the last man.*

In Poland the infected were attacked with spitting of blood, and died in a few days in such vast numbers, that, as it has been affirmed, scarcely a fourth of the inhabitants were left.†

Finally, in Russia the plague appeared two years later than in Southern Europe; again with the same symptoms as elsewhere. Russian contemporaries have recorded that it began with rigor, heat, and darting pain in the shoulders and back; that it was accompanied by spitting of blood, and terminated fatally in two or at most three, days. It is not till the year 1360 that we find buboes mentioned as occurring in the neck, in the axillæ, and in the groins, which are stated to have broken out when the spitting of blood had continued some time. According to the experience of Western Europe, however, it cannot be assumed that these symptoms did not appear at an earlier period.‡

Thus much, from authentic sources, on the nature of the Black Death. The descriptions which have been

armpits, called kernels, biles, blains, blisters, pimples, wheals, or plague-sores. The *Hist. of Edw. III.* Cambridge, 1688 fol. p. 432.

* *Torfaeus*, *Historia rerum Norvegicarum.* Hafn. 1711. fol. L. IX. c. 8. p. 478. This author has followed *Pontanus* (*Rerum Dani-car, Historia, Amstelod.* 1631. fol.), who has given only a general account of the plague in Denmark, and nothing respecting its symptoms.

† *Dlugoss.* See Longini *Histor. polonic.* L. XII. Lips. 1711. fol. T. I. p. 1086.

‡ *W. M. Richter*, *Geschichte der Medicin in Russland.* Moskwa, 1813, 8. p. 215. *Richter* has taken his information on the Black Death in Russia, from authentic Russian MSS.

communicated contain, with a few unimportant exceptions, all the symptoms of the oriental plague which have been observed in more modern times. No doubt can obtain on this point. The facts are placed clearly before our eyes. We must, however, bear in mind that this violent disease does not always appear in the same form, and that while the essence of the poison which it produces, and which is excreted so abundantly from the body of the patient, remains unchanged, it is proteiform in its varieties, from the almost imperceptible vesicle, unaccompanied by fever, which exists for some time before it extends its poison inward, and then excites fever and buboes, to the fatal form in which carbuncular inflammations fall upon the most important viscera.

Such was the form which the plague assumed in the 14th century, for the accompanying chest affection which appeared in all the countries whereof we have received any account, cannot, on a comparison with similar and familiar symptoms, be considered as any other than the inflammation of the lungs of modern medicine,* a disease which at present only appears sporadically, and owing to a putrid decomposition of the fluids, is probably combined with hemorrhages from the vessels of the lungs. Now, as every carbuncle [focus of localization. *Hirsch*], whether it be cutaneous or internal, generates in abundance the matter of contagion which has given rise to it, so, therefore, must the breath of the affected have been poisonous in this plague, and on this account its power of contagion wonderfully increased; wherefore the opinion appears incontrovertible, that as the number of the stricken increased, not

only individual chambers and houses, but whole cities were infected, which, moreover, in the middle ages, were with few exceptions, closely built, kept in a filthy state, and surrounded with stagnant ditches.* Flight was, in consequence, of no avail to the timid; for even though they had sedulously avoided all communication with the diseased and the suspected, yet their clothes were saturated with the pestiferous atmosphere, and every inspiration imparted to them the seeds of the destructive malady, which, in the greater number of cases, germinated all too readily. Add to which, the usual propagation of the plague through clothes, beds, and a thousand other things to which the pestilential poison adheres,—a propagation, which, from want of caution, must have been infinitely multiplied; and since articles of this kind, removed from the access of air, not only retain the matter of contagion for an indefinite period, but also increase its activity frightful ill-consequences followed for many years after the first fury of the pestilence was past.

The affection of the stomach, often mentioned in vague terms, and occasionally as a vomiting of blood, was doubtless only a subordinate symptom, even if it be admitted that actual hematemesis did occur. For the difficulty of distinguishing a flow of blood from the stomach, from a pulmonic expectoration of blood is, to non-medical men, even in common cases, not inconsiderable. How much greater then must it have been in so terrible a disease, where assistants could not venture to approach the sick without exposing themselves to certain death? Only two medical descriptions,† of the malady have reached us, the one by the brave *Guy de Chauliac*, the other by *Raymond Chalin de Vinario*, a very experienced scholar, who was

* Compare on this point, *Balling's* treatise "Zur Diagnostik der Lungenerweichung," Vol. XVI. ii. 3. p. 257 of litt. *Annalen der ges. Heilkunde*. [But Dr. *August Hirsch*, Hecker's latest editor, says the lung affection was *Hæmorrhagic Pneumonia*, which is very frequently observed in typhoid fevers and particularly in *Typhus exanthematicus*. This observation, he adds, is confirmed by experience with the Indian plague.]

* It is expressly stated by *Chalin de Vinario*, with respect to Avignon and Paris, that uncleanness of the streets increased the plague considerably.

† But *Hirsch* names seven other medical accounts.]

well versed in the learning of his time. The former takes notice only of fatal coughing of blood; the latter, besides this, notices bleeding at the nose, bloody urine and fluxes of blood from the bowels, as symptoms of such decided and speedy mortality, that those patients in whom they were observed, usually died on the same or the following day.*

That a vomiting of blood may not, here and there, have taken place, perhaps have been even prevalent in many places, is, from a consideration of the nature of the disease, by no means to be denied: for every putrid decomposition of the fluids begets a tendency to hemorrhages of all kinds. Here, however, it is a question of historical certainty, which, after these doubts, is by no means established. Had not so speedy a death followed the expectoration of blood, we should certainly have received more detailed intelligence respecting other hemorrhages; but the malady had no time to extend its effects further over the extremities of the vessels. After its first fury, however, was spent, the pestilence passed into the usual febrile form of the oriental plague. Internal carbuncular inflammations no longer took place, and hemorrhages became phenomena, no more essential in this than they are in any other febrile disorders. Chalin, who observed not only the *great mortality* of 1348, and the plague of 1360, but also that of 1373 and 1382, speaks moreover of

* *De Peste Libri tres, opera Jacobi Dalechampii* in lucem editi. Lugduni, 1552. 16. p. 35. Dalechamp has only improved the language of this work, adding nothing to it but a preface in the form of two letters. Raymond Chalin de Vinario was contemporary with Guy de Chauliac at Avignon. He enjoyed a high reputation, and was in very affluent circumstances. He often makes mention of cardinals and high officers of the papal court, whom he had treated; and it is even probable, though not certain, that he was physician to Clement VI. (1342—1352), Innocent VI. (1352—1362), and Urban V. (1362—1370). He and Guy de Chauliac never mention each other.

affections of the throat, and describes the *black spots* of plague patients more satisfactorily than any of his contemporaries. The former appeared but in few cases, and consisted in carbuncular inflammation of the gullet, with a difficulty of swallowing, even to suffocation,* to which, in some instances, was added inflammation of the ceruminous glands of the ears, with tumors, producing great deformity. Such patients, as well as others, were affected with expectoration of blood; but they did not usually die before the sixth, and sometimes even so late as the fourteenth, day.† The same occurrence, it is well known, is not uncommon in other pestilences; as also blisters on the surface of the body, in different places, in the vicinity of which, tumid glands and inflammatory boils, surrounded by discolored and black streaks, arose, and thus indicated the reception of the poison. These streaked spots were called, by an apt comparison, *the girdle*, and this appearance was justly considered extremely dangerous.‡

[* No doubt *Diphtheria* is here meant *Hirsch.*]—J. F.

† Dalechamp, p. 205—where, and at pp. 32—36, the plague-eruptions are mentioned in the usual indefinite terms: *Exanthemata viridia, cærulea, nigra, rubra, lata, diffusa, velut signata punctis, etc.*

‡ "Pestilentis morbi gravissimum symptoma est, quod zonam vulgo nuncupant. Ea sic fit: Pustulæ nonnquam per febres pestilentes fuscæ, nigræ, lividæ existunt, in partibus corporis a glandularum emissariis se-junctis, ut in femore, tibia, capite, brachio, humeris, quarum fervore et caliditate succi corporis attracti, glandulas in trajectione replent, et attollunt, unde bubones fiunt atque carbunculi. *Ab iis tanquam solidus quidam nervus in partem vicinam distentam ac veluti convulsione rigentem producit, puta brachium vel tibiam, nunc rubens, nunc fuscus, nunc obscurior, nunc virens, nunc iridis colore, duos vel quatuor digitos latus.* Hujus summo, qua desinit in emissarium, plerumque tuberculum pestilens visitur, altero vero extremo, qua in propinquum membrum porrigitur, carbunculus. Hoc scilicet malum vulgus zonam cinctumve nominat, periculosum minus, cum hic tuberculo, illic carbunculo terminatur, quam si tuberculum in capite solum emineat." p. 198.

CHAPTER III.

CAUSES.—SPREAD.

AN inquiry into the causes of the Black Death will not be without important results in the study of the plagues which have visited the world, although it cannot advance beyond generalities without entering upon a field hitherto uncultivated, and, to this hour, entirely unknown. Mighty revolutions in the organism of the earth, of which we have credible information, had preceded. From China to the Atlantic, the foundations of the earth were shaken,—throughout Asia and Europe the atmosphere was in commotion, and endangered, by its baneful influence, both vegetable and animal life.

The series of these great events began in the year 1333, fifteen years before the plague broke out in Europe: they first appeared in China. Here a parching drought, accompanied by famine, commenced in the tract of country watered by the rivers Kiang and Hoai. This was followed by such violent torrents of rain, in and about Kingsai, at that time the capital of the empire, that according to tradition more than 400,000 people perished in the floods. Finally the mountain Tsincheou fell in, and vast clefts were formed in the earth. In the succeeding year (1334), passing over fabulous traditions, the neighborhood of Canton was visited by inundations; whilst in Tche, after an unexampled drought, a plague arose, which is said to have carried off about 5,000,000 of people. A few months afterward an earthquake followed, at and near Kingsai; and subsequent to the falling in of the mountains of Ki-ming-chan, a lake was formed of more than a hundred leagues in circumference, where, again, thousands found their grave. In Houkouang and Ho-nan a drought prevailed for five months; and innumerable swarms of locusts destroyed the vegetation; while famine and pestilence, as usual, followed in their train. Connected accounts

of the condition of Europe before this great catastrophe are not to be expected from the writers of the fourteenth century. It is remarkable, however, that simultaneously with a drought and renewed floods in China, in 1336, many uncommon atmospheric phenomena, and in the winter frequent thunder storms, were observed in the north of France; and so early as the eventful year 1333, an eruption of Etna took place.* According to the Chinese annals, about 4,000,000 people perished by famine in the neighborhood of Kiang in 1337: and deluges, swarms of locusts, and an earthquake which lasted six days, caused incredible devastation. In the same year, the first swarms of locusts appeared in Franconia, which were succeeded in the following year by myriads of these insects. In 1338, Kingsai was visited by an earthquake of ten days' duration; at the same time France suffered from a failure of the harvest; and thenceforth, till 1342, there was in China a constant succession of inundations, earthquakes, and famines. In the same year great floods occurred in the vicinity of the Rhine and in France, which could not be attributed to rain alone; for everywhere, even on the tops of mountains, springs were seen to burst forth, and dry tracts were laid under water in an inexplicable manner. In the following year, the mountain Hong-tchang, in China, fell in, and caused a destructive deluge; and in Pien-tcheou and Leang-tcheou, after three months' rain, there followed unheard-of inundations, which destroyed seven cities. In Egypt and Syria, violent earthquakes took place; and in China they became, from this time, more and more frequent: for they recurred, in 1344, in Ven-tcheou, where the sea overflowed in consequence; in 1345, in Ki-tcheou, and in both the following

*V. Hoff, Geschichte der natürlichen Veränderungen der Erdoberfläche, II. p. 264. Gotha, 1824. This eruption was not succeeded by any other in the same century, either of Etna or of Vesuvius.

years in Canton, with subterraneous thunder. Meanwhile, floods and famine devastated various districts, until 1347, when the fury of the elements subsided in China.*

The signs of terrestrial commotions commenced in Europe in the year 1348, after the intervening districts of country in Asia had probably been visited in the same manner. On the island of Cyprus, the plague of the East had already broken out; when an earthquake shook the foundations of the island, and was accompanied by so frightful a hurricane, that the inhabitants, who had slain their Mahometan slaves in order that they might not themselves be subjugated by them, fled in dismay, in all directions. The sea overflowed—the ships were dashed to pieces on the rocks, and few outlived the terrific event, whereby this fertile and blooming island was converted into a desert. Before the earthquake, a pestiferous wind spread so poisonous an odor, that many, being overpowered by it, fell down suddenly and expired in dreadful agonies.†

This phenomenon is one of the rarest that has ever been observed, for nothing is more constant than the composition of the air; and in no respect has nature been more careful in the preservation of organic life. Never have naturalists discovered in the atmosphere foreign elements, which, evident to the senses, and borne by the winds, spread from land to land, carrying disease over whole portions of the earth, as is recounted to have taken place in the year 1348. It is therefore, the more to be regretted, that in this extraordinary period, which, owing to the low condition of science, was very deficient in accurate observers, so little that can be depended on respecting those uncommon occurrences in the air, should have been recorded. Yet, German accounts say expressly, that a thick, stinking mist advanced

from the East, and spread itself over Italy;* and there could be no deception in so palpable a phenomenon. The credibility of unadorned traditions, however little they may satisfy physical research, can scarcely be called in question when we consider the connection of events; for just at this time earthquakes were more general than they had been within the range of history. In thousands of places chasms were formed, from whence arose noxious vapors; and as at that time natural occurrences were transformed into miracles, it was reported, that a fiery meteor, which descended on the earth far in the East, had destroyed everything within a circumference of more than a hundred leagues, infecting the air far and wide.† The consequences of innumerable floods contributed to the same effect; vast river districts had been converted into swamps; foul vapors arose everywhere, increased by the odor of putrified locusts, which had never perhaps darkened the sun in thicker swarms,‡ and of countless corpses, which, even in the well-regulated countries of Europe, they knew not how to remove quickly

*“There were also many locusts which had been blown into the sea by a hurricane, and afterward cast dead upon the shore, and produced a noxious exhalation; and a dense and awful fog was seen in the heavens, rising in the East, and descending upon Italy.” Mansfeld Chronicle, in M. Cyriac. Spangenberg, chap. 287, fol. 336. b. Eisleben, 1572. Compare Staind. Chron. (?) in *Schnurrer*: “Ingens vapor magnitudine horribili boreali movens, regionem, magno adspicium terrore dilabatur,” and *Ad. von Lebenwaldt*, Land-Stadt-und Hausarzney-Buch. fol. p. 15. Nuremberg, 1695, who mentions a dark, thick mist which covered the earth. *Chalin* expresses himself on this subject in the following terms:—“Cœlum ingravescit, ær impurus sentitur: nubes erassa ac multa lumina celi obstruunt, immundus ac ignavus tepor hominum emollit corpora, exoriens sol pallescit.” p. 50.

† *Mezerau*, Histoire de France, Tom. II. 418. Paris, 1685. Compare *Oudegheerst* Chroniques de Flandres. Antwerp, 1571, 4 to. Chap. 175, f. 297 b.

‡ They spread in a direction from East to West, over most of the countries from which we have received intelligence. *Anonym.* Leobiens. Chron. loc. cit.

* *Dequignes*, loc. cit. p. 226, from Chinese sources.

† *Dequignes*, ib. p. 225.

enough out of the sight of the living. It is probable, therefore, that the atmosphere contained foreign, and sensibly perceptible, admixtures to a great extent, which, at least in the lower regions, could not be decomposed, or rendered ineffective by separation.

Now, if we go back to the symptoms of the disease, the ardent inflammation of the lungs points out that the organs of respiration yielded to the attack of an atmospheric poison—a poison which, if we admit the independent origin of the Black Plague at any one place on the globe, which, under such extraordinary circumstances, it would be difficult to doubt, attacked the course of the circulation in as hostile a manner as that which produces inflammation of the spleen, and other animal contagions that cause swelling and inflammation of the lymphatic glands.

Pursuing the course of these grand revolutions further, we find notice of an unexampled earthquake, which on the 25th of January, 1348, shook Greece, Italy, and the neighboring countries. Naples, Rome, Pisa, Bologna, Padua, Venice, and many other cities suffered considerably: whole villages were swallowed up. Castles, houses, and churches were overthrown, and hundreds of people were buried beneath their ruins.* In Carinthia, thirty villages, together with all the churches, were demolished; more than a thousand corpses were drawn out of the rubbish; the city of Villach was so completely destroyed, that very few of its inhabitants were saved; and when the earth ceased to tremble, it was found that mountains had been moved from their positions, and that many hamlets were left in ruins.† It is recorded that, during this earthquake, the wine in the casks became turbid, a statement which may be

considered as furnishing a proof that changes causing a decomposition of the atmosphere had taken place; but if we had no other information from which the excitement of conflicting powers of nature during these commotions might be inferred, yet scientific observations in modern times have shown, that the relation of the atmosphere to the earth is changed by volcanic influences. Why then, may we not, from this fact, draw retrospective inferences respecting those extraordinary phenomena?

Independently of this, however, we know that during this earthquake, the duration of which is stated by some to have been a week, and by others a fortnight, people experienced an unusual stupor and head-ache, and that many fainted away.*

These destructive earthquakes extended as far as the neighborhood of Basle,† and recurred until the year 1360, throughout Germany, France, Silesia, Poland, England, and Denmark, and much further north.‡

Great and extraordinary meteors appeared in many places, and were regarded with superstitious horror. A pillar of fire, which on the 20th of December, 1348, remained for an hour at sunrise over the pope's palace in Avignon;§ a fireball, which in August of the same year was seen at sunset over Paris, and was distinguished from similar phenomena by its longer duration,|| not to mention other instances mixed up with wonderful prophecies and omens, are recorded in the chronicles of that age.

* *Albert. Argentinienis. Chronic. in Urstis. Scriptor. rer. Germanic. Francof. 1585. fol. P. II. p. 147. Compare Chalin, loc. cit.*

† *Petrarch. Opera. Basil. 1554. fol. p. 210. Barnes, loc. cit. p. 431.*

‡ "Un tremblement de terre universel, mesme en France et aux pays septentrionaux, renversoit les villes toutes entières, déracinoit les arbres et les montagnes, et remplissoit les campagnes d'abysmes si profondes, qu'il sembloit que l'enfer eût voulu engloutir le genre humain." *Mezeray, loc. cit. p. 418. Barnes, p. 431.*

§ *Villani, loc. cit. c. 119. p. 1000.*

|| *Guillelm. de Nangis, Cont. alt. Chron. loc. cit. p. 109.*

* *Giov. Villani Istorie Fiorentine, L. XII. chap. 121, 122, in Muratori, T. XIII. pp. 1001, 1002. Compare Barnes, loc. cit. p. 430.*

† *J. Vitoduran. Chronicon, in Füssli. Thesaurus Histor. Helvet. Tigur. 1735. fol. p. 84.*

The order of the seasons seem to be inverted,—rains, floods, and failures of crops were so general, that few places were exempt from them; and though an historian of this century assures us that there was an abundance in the granaries and storehouses,* all his contemporaries, with one voice, contradict him. The consequences of failure in the crops were soon felt, especially in Italy and the surrounding countries, where, in this year, a rain which continued for four months had destroyed the seed. In the larger cities, they were compelled, in the spring of 1347, to have recourse to a distribution of bread among the poor, particularly at Florence, where they erected large bake-houses, from which, in April, ninety-four thousand loaves of bread, each twelve ounces in weight, were daily dispensed.† It is plain, however, that humanity could only partially mitigate the general distress, not altogether obviate it.

Diseases, the invariable consequence of famine, broke out in the country, as well as in cities; children died of hunger in their mothers' arms,—want, misery, and despair, were general throughout Christendom.‡

Such are the events which took place before the eruption of the Black Plague in Europe. Contemporaries have explained them after their own manner, and have thus, like their posterity, under similar circumstances, given a proof that mortals possess neither senses nor intellectual powers sufficiently acute to comprehend the phenomena produced by the earth's organism, much less scientifically to understand their effects. Superstition, selfishness in a thousand forms, the presumption of the schools, laid hold of unconnected facts. They vainly thought to comprehend the

whole in the individual, and perceived not the universal spirit which, in intimate union with the mighty powers of nature, animates the movements of all existence, and permits not any phenomenon to originate from isolated causes. To attempt, five centuries after that age of desolation, to point out the causes of a cosmical commotion, which has never recurred to an equal extent,—to indicate scientifically the influences which called forth so terrific a poison in the bodies of men and animals, exceeds the limits of human understanding. If we are even now unable, with all the varied resources of an extended knowledge of nature, to define that condition of the atmosphere by which pestilences are generated, still less can we pretend to reason retrospectively from the nineteenth to the fourteenth century; but if we take a general view of the occurrences, that century will give us copious information, and, as applicable to all succeeding times, of high importance.

In the progress of connected natural phenomena, from East to West, that great law of nature is plainly revealed which has so often and evidently manifested itself in the earth's organism, as well as in the state of nations dependent upon it. In the inmost depths of the globe, that impulse was given in the year 1333, which in uninterrupted succession for six-and-twenty years shook the surface of the earth, even to the western shores of Europe. From the very beginning the air partook of the terrestrial concussion, atmospherical waters overflowed the land, or its plants and animals perished under the scorching heat. The insect tribe was wonderfully called into life, as if animated beings were destined to complete the destruction which astral and telluric powers had begun. Thus did this dreadful work of nature advance from year to year; it was a progressive infection of the zones, which exerted a powerful influence both above and beneath the surface

* *Ibid.* p. 110.

† *Villani*, loc. cit. c. 72. p. 954.

‡ Anonym. *Istorie Pistolesi*, in *Muratori*, T. XI. p. 524. "Ne gli anni di Chr. 1346 et 1347, fu grandissima carestia in tutta la Christianità, in tanto che molta gente moria di fame, e fu grande mortalità in ogni paese del mondo."

of the earth ; and after having been perceptible in slighter indications, at the commencement of the terrestrial commotions in China, convulsed the whole earth.

The nature of the first plague in China is unknown. We have no certain intelligence of the disease, until it entered the western countries of Asia. Here it showed itself as the oriental plague with inflammation of the lungs ; in which form it probably also may have begun in China, that is to say, as a malady which spreads, more than any other, by contagion—a contagion, that, in ordinary pestilences, requires immediate contact, and only under unfavorable circumstances of rare occurrence is communicated by the mere approach to the sick. The share which this cause had in the spreading of the plague over the whole earth, was certainly very great : and the opinion that the Black Death might have been excluded from Western Europe, by good regulations, similar to those which are now in use, would have all the support of modern experience, provided it could be proved that this plague had been actually imported from the East ; or that the oriental plague in general, whenever it appears in Europe, has its origin in Asia or Egypt. Such a proof, however, can by no means be produced so as to enforce conviction ; for it would involve the impossible assumption, either that there is no essential difference between the degree of civilization of the European nations, in the most ancient and in modern times, or that detrimental influences, which have yielded only to the civilization of human society and the regular cultivation of countries, could not formerly keep up the glandular plague.

The plague was, however, known in Europe before nations were united by the bonds of commerce and social intercourse ;* hence there is ground

* According to *Papon*, its origin is quite lost in the obscurity of remote ages ; and even before the Christian Era, we are able to

for supposing that it sprung up spontaneously, in consequence of the rude manner of living and the uncultivated state of the earth ; influences which peculiarly favor the origin of severe diseases. Now we need not go back to the earlier centuries, for the 14th itself, before it had half expired, was visited by five or six pestilences.*

If, therefore, we consider the peculiar property of the plague, that, in countries which it has once visited, it remains for a long time in a milder form, and that the epidemic influences of 1342, when it had appeared for the last time, were particularly favorable to its unperceived continuance, till 1348, we come to the notion, that in this eventful year also, the germs of plague existed in Southern Europe, which might be vivified by atmospherical deteriorations ; and that thus, at least in part, the Black Plague may have originated in Europe itself. The corruption of the atmosphere came from the East ; but the disease itself came not upon the wings of the wind, but was only excited and increased by the atmosphere where it had previously existed.

This source of the Black Plague was not, however, the only one ; for, far more powerful than the excitement of the latent elements of the plague by atmospheric influences, was the effect of the contagion communicated from one people to another, on the great roads, and in the harbors of the Mediterranean. From China, the route of the caravans lay to the north of the Caspian Sea, through Central Asia to Tauris. Here ships were ready to take the produce of the East to Constanti-

trace many references to former pestilences. De la peste, ou époques mémorables de ce fléau, et les moyens de s'en préserver. T. II. Paris, An VIII. de la rép 8.

* 1301, in the South of France ; 1311, in Italy ; 1316, in Italy, Burgundy, and Northern Europe ; 1335, the locust year, in the middle of Europe ; 1340, in Upper Italy ; 1342, in France ; and 1347, in Marseilles and most of the larger islands of the Mediterranean. Ibid. T. II. p. 273.

nople, the capital of commerce, and the medium of connection between Asia, Europe, and Africa.* Other caravans went from India to Asia Minor, and touched at the cities south of the Caspian Sea, and lastly from Bagdad, through Arabia to Egypt; also the maritime communication on the Red Sea, from India to Arabia and Egypt, was not inconsiderable. In all these directions contagion made its way; and doubtless, Constantinople and the harbors of Asia Minor, are to be regarded as the foci of infection; whence it radiated to the most distant seaports and islands.

To Constantinople, the plague had been brought from the northern coast of the Black Sea,† after it had depopulated the countries between those routes of commerce; and appeared as early as 1347, in Cyprus, Sicily, Marseilles, and some of the seaports of Italy. The remaining islands of the Mediterranean, particularly Sardinia, Corsica, and Majorca, were visited in succession. Foci of contagion existed also in full activity along the whole southern coast of Europe; when, in January, 1348, the plague appeared in Avignon,‡ and in other cities in the south of France and north of Italy, as well as in Spain.

The precise days of its eruption in the individual towns are no longer to be ascertained; but it was not simultaneous; for in Florence the disease appeared in the beginning of April; § in Cesena, the 1st of June; || and place after place was attacked throughout the whole year; so that the plague, after it had passed through the whole of France and Germany, where, however, it did not make its ravages until the following year, did not break out till August in England; where it advanced so gradually, that a period of three months elapsed before it

reached London.* The northern kingdoms were attacked by it in 1349. Sweden, indeed, not until November of that year: almost two years after its eruption in Avignon.† Poland received the plague in 1349, probably from Germany,‡ if not from the northern countries; but in Russia, it did not make its appearance until 1351, more than three years after it had broken out in Constantinople. Instead of advancing in a north-westerly direction from Tauris and from the Caspian Sea, it had thus made the great circuit of the Black Sea, by way of Constantinople, Southern and Central Europe, England, the northern kingdoms and Poland, before it reached the Russian territories; a phenomenon which has not again occurred with respect to more recent pestilences originating in Asia.

Whether any difference existed between the indigenous plague, excited by the influence of the atmosphere, and that which was imported by contagion, can no longer be ascertained from facts; for the contemporaries, who in general were not competent to make accurate researches of this kind, have left no data on the subject. A milder and a more malignant form certainly existed, and the former was not always derived from the latter, as is to be supposed from this circumstance—that the spitting of blood, the infallible diagnostic of the latter, on the first breaking out of the plague, is not similarly mentioned in all the reports; and it is therefore probable that the milder form belonged to the native plague,—the more malignant, to that introduced by contagion. Contagion was, however, in itself, only one of many causes which gave rise to the Black Plague.

This disease was a consequence of violent commotions in the earth's organism—if any disease of cosmical

* Compare *Deguignes*, loc. cit. p. 288.

† According to the general Byzantine designation, "from the country of the hyperborean Scythians." *Cantacuzen*, loc. cit.

‡ *Guid. Gauliac*, loc. cit.

§ *Matt. Villani*, *Istorie*, in *Muratori*, T. XIV. p. 14.

|| *Annal. Cæsenat*, *Ibid.* p. 1179.

* *Barnes*, loc. cit.

† *Olof Dalin's Svea-Rikes Historie*, III. vol. Stockholm, 1747-61, 4, Vol. II. C. 12, p. 496.

‡ *Dlugoss*, *Histor. Polon.* L. IX. p. 1086, T. I. Lips. 1711, fol.

origin can be so considered. One spring set a thousand others in motion for the annihilation of living beings, transient or permanent, of mediate or immediate effect. The most powerful of all was contagion; for in the most distant countries, which had scarcely yet heard the echo of the first concussion, the people fell a sacrifice to organic poison,—the untimely offspring of vital energies thrown into violent commotion.

CHAPTER IV.

MORTALITY.

WE have no certain measure by which to estimate the ravages of the Black Plague, if numerical statements were wanted, as in modern times. Let us go back for a moment to the 14th century. The people were yet but little civilized. The church had indeed subdued them; but they all suffered from the ill consequences of their original rudeness. The dominion of the law was not yet confirmed. Sovereigns had everywhere to combat powerful enemies to internal tranquillity and security. The cities were fortresses for their own defense. Marauders encamped on the roads; the husbandman was a feudal slave, without possessions of his own; rudeness was general; humanity, as yet unknown to the people. Witches and heretics were burned alive; gentle rulers were contemned as weak; wild passions, severity, and cruelty, everywhere predominated. Human life was little regarded; governments concerned not themselves about the numbers of their subjects, for whose welfare it was incumbent on them to provide. Thus, the first requisite for estimating the loss of human life, namely, a knowledge of the amount of the population, is altogether wanting; and, moreover, the traditional statements of the amount of this loss are so vague, that at most they only give us ground of probable conjecture.

Cairo lost daily, when the plague was raging with its greatest violence, from 10,000 to 15,000; being as many as, in modern times, great plagues have carried off during their whole course. In China, more than thirteen millions are said to have died; and this is in correspondence with the certainly exaggerated accounts from the rest of Asia. India was depopulated. Tartary, the Tartar kingdom of Kaptshak, Mesopotamia, Syria, Armenia, were covered with dead bodies; the Kurds fled in vain to the mountains. In Caramania and Cæsarea, none were left alive. On the roads, in the camps, in the caravansaries, unburied bodies alone were seen; and a few cities only (Arabian historians name Maara el nooman, Schisur, and Harem) remained, in an unaccountable manner, free. In Aleppo, 500 died daily; 22,000 people, and most of the animals, were carried off in Gaza within six weeks. Cyprus lost almost all its inhabitants;* and ships without crews were often seen in the Mediterranean, as afterward in the North Sea, driving about, and spreading the plague wherever they went on shore.† It was reported to Pope Clement, at Avignon, that throughout the East, probably with the exception of China, 23,840,000 people had fallen victims to the plague.‡ Considering the occurrences of the 14th and 15th centuries, we might, on first view, suspect the accuracy of this statement. How (it might be asked) could such great wars have been carried on—such powerful efforts have been made; how could the Greek empire, only a hundred years later, have been overthrown, if the people really had been so utterly destroyed?

This account is nevertheless rendered credible by the ascertained fact, that the palaces of princes are less accessible to contagious diseases than the dwellings of the multitude; and that in places of importance, the influx from those districts which have

* *Deguignes*, loc. cit. p. 223, f.

† *Matt. Villani*, *Istorie*, loc. cit. p. 13.

‡ *Knighton*, in *Barnes*, loc. cit. p. 434.

suffered least soon repairs even the heaviest losses. We must remember, also, that we do not gather much from mere numbers without an intimate knowledge of the state of society. We will, therefore, confine ourselves to exhibiting some of the more credible accounts relative to European cities.

In Florence there died of the Black Plague	60,000 *
In Venice	100,000 †
In Marseilles, in one month	16,000 †
In Siena	70,000 §
In Paris	50,000
In St. Denys	14,000 ¶
In Avignon	60,000 **
In Strasburg	16,000 ††
In Lübeck	9,000 ††
In Basle	14,000
In Erfurt, at least	16,000

* *Jno. Trithem. Annal. Hirsaugiens.* (Monast. St. Gall. Hirsaug. 1690. fol.) T. II. p. 296. According to *Boccaccio*, loc. cit. 100,000; according to *Matt. Villani*, loc. cit. p. 14, three out of five.

† *Odoric. Raynald. Annal. ecclesiastic.* Colon. Agripp. 1691. fol. Vol. XVI. p. 280.

‡ *Vitoduran. Chronic. in Füssli*, loc. cit.

§ *Tromby, Storia de S. Brunone e dell' ordine Cartusiano.* Vol. VI. L. VIII. p. 235. Napl. 1777. fol.

|| *Barnes*, p. 435.

¶ *Ibid.*

** *Baluz. Vitæ Papar. Avenionens.* Paris, 1693-4. Vol. I. p. 316. According to *Rebdorf in Freher.* loc. cit. at the worst period, 500 daily.

†† *Königshoven*, loc. cit.

‡‡ According to *Reimar Kork*, from Easter to Michaelmas 1350, 80,000 to 90,000; among whom were eleven members of the senate, and Bishop John IV. Vid. *John Rud. Becker, Circumstantial History of the Imper. and free city of Lübeck.* Lübeck, 1782, 84, 1805. 3 Vols. 4. Vol. I. p. 269. 71. Although Lübeck was then in its most flourishing state, yet this account, which agrees with that of *Paul Lange*, is certainly exaggerated. (*Chronic. Citizense*, in I. *Pistorius, Rerum Germanic. Scriptores aliquot insignes*, cur. *Struwe. Ratisb.* 1626. fol. p. 1214.) We have, therefore, chosen the lower estimate of an anonym. writer. *Chronic. Slavic. by Erpold Lindenberg. Scriptores rerum Germanic. Septentrional. vicinorumque populor. diversi, Francof.* 1630. fol. p. 225, and *Spangenberg.* loc. cit., with whom again the assurance of the two authors, that on the 10th August, 1350, 15 or 1700 (according to *Becker* 2500) persons had died, does not coincide. Compare *Chronic des Franciskaner Lesemeisters Detmar*, nach der Urschrift und mit Ergänzungen aus anderen Chroniken, published by F. H. Grau-

In Weimar	5,000 *
In Limburg	2,500 †
In London, at least	100,000 ‡
In Norwich	51,100 §
To which may be added—	
Franciscan Friars in Germany	124,434
Minorites in Italy	30,000 ¶

This short catalogue might, by a laborious and uncertain calculation, deduced from other sources, be easily further multiplied, but would still fail to give a true picture of the depopulation which took place. Lübeck, at that time the Venice of the North, which could no longer contain the multitudes that flocked to it, was thrown into such consternation on the eruption of the plague, that the citizens destroyed themselves as if in frenzy. Merchants whose earnings and possessions were unbanded, coldly and willingly renounced their earthly goods. They carried their treasures to monasteries and churches, and laid them at the foot of the altar; but gold had no charms for the monks, for it brought them death. They shut their gates; yet, still it was cast to them over the convent walls. People would brook no impediment to the last pious work to which they were driven by despair. When the plague ceased, men thought they were still wandering among the dead, so appalling was the livid aspect of the survivors, in consequence of the anxiety they had undergone, and the unavoidable infection of the air.** Many other cities probably presented a similar appearance; and it is ascertained that a great number of small country towns and villages, which have been estimated, and not too highly, at

toff. Hamburg, 1829, 30. 8. P. I. p. 269. App. 471.

* *Förstemann, Versuch einer Geschichte der christlichen Geisslergesellschaften, in Stäudlin's und Tzschirner's Archiv für alte und neue Kirchengeschichte, Vol. III. 1817.*

† *Limburg Chronicle, pub. by C. D. Vogel. Marburg, 1828. 8vo. p. 14.*

‡ *Barnes*, loc. cit.

§ *Ibid.*

|| *Spangenberg*, fol. 339. a.

¶ *Vitoduran*, loc. cit.

** *Becker*, loc. cit.

200,000,* were bereft of all their inhabitants.

In many places in France not more than two out of twenty of the inhabitants were left alive,† and the capital felt the fury of the plague, alike in the palace and the cot. Two queens,‡ one bishop,§ and great numbers of other distinguished persons, fell a sacrifice to it, and more than 500 a day died in the Hôtel-Dieu, under the faithful care of the religious women, whose disinterested courage, in this age of horror, displayed the most beautiful traits of human virtue. For although they lost their lives, evidently from contagion, and their numbers were several times renewed, there was still no want of fresh candidates, who, strangers to the unchristian fear of death, piously devoted themselves to their holy calling.

The churchyards were soon unable to contain the dead,|| and many houses, left without inhabitants, fell to ruins. In Avignon, the pope found it necessary to consecrate the Rhone, that bodies might be thrown into the river without delay, as the churchyards would no longer hold them; ¶ so likewise, in all populous cities, extraordinary measures were adopted, in order speedily to dispose of the dead. In Vienna, where for some time 1200 inhabitants died daily,** the interment of corpses in the churchyards and within the churches was forthwith prohibited; and the dead were then arranged in layers, by thousands, in six large pits outside the city,†† as had already been done in

Cairo and Paris. Yet, still many were secretly buried; for at all times the people are attached to the consecrated cemeteries of their dead, and will not renounce the customary mode of interment.

In many places, it was rumored that plague patients were buried alive,* as may sometimes happen through senseless alarm and indecent haste; and thus the horror of the distressed people was everywhere increased. In Erfurt, after the churchyards were filled, 12,000 corpses were thrown into eleven great pits; and the like might, more or less exactly, be stated with respect to all the larger cities.† Funeral ceremonies, the last consolation of the survivors, were everywhere impracticable.

In all Germany, according to a probable calculation, there seem to have died only 1,244,434 ‡ inhabitants; this country, however, was more spared than others; Italy, on the contrary, was most severely visited. It is said to have lost half its inhabitants; § and this account is rendered credible from the immense losses of individual cities and provinces: for in Sardinia and Corsica, according to the account of the distinguished Florentine, John Villani, who was himself carried off by the Black Plague,|| scarcely a third part of the population remained alive; and it is related of the Venetians, that they engaged ships at a high rate to retreat to the islands; so that after the plague had carried off three fourths of her inhabitants, that proud city was left

* *Rebdorf*. p. 630.

† *Guillelm. de Nangis*. loc. cit.

‡ *Johanna*, queen of Navarre, daughter of *Louis X.*, and *Johanna* of Burgundy, wife of King *Philip* de Valois.

§ *Fulco de Chanac*.

|| *Mich. Felibien*, *Histoire de la ville de Paris*, Liv. XII. Vol. II. p. 601. Paris, 1725. fol. Cf. *Guillelm. de Nangis*. loc. cit. and *Daniel Histoire de France*, Tom. II. p. 484. Amsterd. 1720, 4to.

¶ *Torſæus*, loc. cit.

** According to another account, 960. *Chronic. Salisburg.* in *Pez*. loc. cit. T. I. p. 412.

†† According to an anonymous Chronicler, each of these pits is said to have contained

40,000; this, however, we are to understand as only in round numbers. Anonym. *Leobien.* in *Pez*. p. 970. According to this writer, above seventy persons died in some houses, and many were entirely deserted, and at St. Stephen's alone, fifty-four ecclesiastics were cut off.

* *Auger. de Biterris* in *Muratori*, Vol. III. P. II. p. 556. The same is said of Paderborn, by *Gobelin Person*, in *Heur. Meibom.* *Rer. Germanic. Script.* T. I. p. 286. *Helmstadt*, 1688. fol.

† *Spangenberg.* loc. cit. chap. 287. fol. 337.

b. ‡ *Barnes*, 435.

§ *Tritheim.* *Annal.* *Hirsaug.* loc. cit.

|| *Loc. cit.* L. XII. c. 99. p. 977.

forlorn and desolate.* In Padua, after the cessation of the plague, two thirds of the inhabitants were wanting; and in Florence it was prohibited to publish the numbers of the dead, and to toll the bells at their funerals, in order that the living might not abandon themselves to despair.†

We have more exact accounts of England; most of the great cities suffered incredible losses; above all, Yarmouth, in which, 7052 died: Bristol, Oxford, Norwich, Leicester, York, and London, where, in one burial-ground alone, there were interred upward of 50,000 corpses, arranged in layers, in large pits.‡ It is said that in the whole country, scarcely a tenth part remained alive; § but this estimate is evidently too high. Smaller losses were sufficient to cause those convulsions, whose consequences were felt for some centuries, in a false impulse given to civil life, and whose indirect influence, unknown to the English, has perhaps, extended even to modern times.

Morals were deteriorated everywhere, and public worship was, in a great measure, laid aside; for, in many places, the churches were deserted, being bereft of their priests. The instruction of the people was impeded; || covetousness became general; and when tranquillity was restored, the great increase of lawyers was astonishing, to whom the endless disputes regarding inheritances offered a rich harvest. The want of priests too, throughout the country, operated very detrimentally upon the people,

* *Chronic. Claustro-Neoburg.* in *Pez.* Vol. I. p. 490. *Comp. Barnes*, p. 435. *Raynald* *Histor. ecclesiastic*, loc. cit. According to this account, a fugitive Venetian is said to have brought the plague to Padua.

† *Giov. Villani*, L. XII. c. 83. p. 964.

‡ *Barnes*, p. 436.

§ *Wood*, loc. cit.

|| *Wood* says that before the plague, there were 13,000 students at Oxford; a number which may, in some degree, enable us to form an estimate of the state of education in England at that time, if we consider that the universities were, in the middle ages, frequented by younger students, who in modern times do not quit school till their 18th year.

(the lower classes being most exposed to the ravages of the plague, while the houses of the nobility were, in proportion, much more spared,) and it was no compensation that bands of ignorant laymen, who had lost their wives during the pestilence, crowded into the monastic orders, that they might share in the respectability of the priesthood, and in the rich heritages which fell to the church from all quarters. The sittings of Parliament, of the King's Bench, and of most of the other courts, were suspended as long as the malady raged. The laws of peace availed not during the dominion of death. Pope Clement took advantage of this state of disorder to adjust the bloody quarrel between Edward III. and Philip VI.; yet he only succeeded during the period that the plague commanded peace. Philip's death (1350) annulled all treaties; and it is related that Edward, with other troops indeed, but with the same leaders and knights, again took the field. Ireland was much less heavily visited than England. The disease seems to have scarcely reached the mountainous districts of that kingdom; and Scotland too would, perhaps, have remained free, had not the Scots availed themselves of the misfortune of the English, to make an irruption into their territory, which terminated in the destruction of their army, by the plague and by the sword, and the extension of the pestilence, through those who escaped, over the whole country.

At the commencement, there was in England a superabundance of all the necessaries of life; but the plague, which seemed then to be the sole disease, was soon accompanied by a fatal murrain among the cattle. Wandering about without herdsman, they fell by thousands; and, as has likewise been observed in Africa, the birds and beasts of prey are said not to have touched them. Of what nature this murrain may have been, can no more be determined, than whether it originated from communication with the plague patients, or from other

causes; but thus much is certain, that it did not break out until after the commencement of the Black Death. In consequence of this murrain, and the impossibility of removing the corn from the fields, there was everywhere a great rise in the price of food, which to many was inexplicable, because the harvest had been plentiful; by some it was attributed to the wicked designs of the farmers and dealers; but it really had its foundation in the actual deficiency arising from circumstances by which individual classes at all times endeavor to profit. For a whole year, until it terminated in August, 1349, the Black Plague prevailed in this beautiful island, and everywhere poisoned the springs of comfort and prosperity.*

In other countries, it generally lasted only half a year, but returned frequently in individual places; on which account, some, without sufficient proof, assigned to it a period of seven years.† Spain was uninterruptedly ravaged by the Black Plague till after the year 1350, to which the frequent internal feuds and the wars with the Moors not a little contributed. Alphonso XI., whose passion for war carried him too far, died of it at the siege of Gibraltar, on the 26th of March, 1350. He was the only king in Europe who fell a sacrifice to it; but even before this period, innumerable families had been thrown into affliction.‡ The mortality seems otherwise to have been less in Spain than in Italy, and about as considerable as in France.

The whole period during which the Black Plague raged with destructive violence in Europe, was, with the exception of Russia, from the year 1347 to 1350. The plagues which in the

sequel often returned until the year 1383,* we do not consider as belonging to "the Great Mortality." They were rather common pestilences, without inflammation of the lungs, such as in former times, and in the following centuries, were excited by the matter of contagion everywhere existing, and which, on every favorable occasion, gained ground anew, as is usually the case with this frightful disease.

The concourse of large bodies of people was especially dangerous; and thus, the premature celebration of the Jubilee, to which Clement VI. cited the faithful to Rome, (1350,) during the great epidemic, caused a new eruption of the plague, from which it is said that scarcely one in a hundred of the pilgrims escaped.† Italy was, in consequence, depopulated anew; and those who returned spread poison and corruption of morals in all directions.‡ It is, therefore, the less apparent, how that pope, who was in general wise and considerate, and who knew how to pursue the path of reason and humanity, under the most difficult circumstances, should have been led to adopt a measure so injurious; since he himself was so convinced of the salutary effect of seclusion, that during the plague in Avignon he kept up constant fires, and suffered no one to approach him;§ and, in other respects, gave such orders as averted, or alleviated, much misery.

The changes which occurred about this period in the north of Europe are sufficiently memorable to claim a few moments' attention. In Sweden two princes died—Haken and Knut, half-brothers of King Magnus; and in Westgothland alone, 466 priests.|| The inhabitants of Iceland and

* *Barnes and Wood*, loc. cit.

† *Gobelin. Person.* in *Meibom.* loc. cit.

‡ *Juan de Mariana*, *Historia General de España*, illustrated by *Don José Sabau y Blanco*, Tom. IX. Madrid, 1819. 8vo. Libro XVI. p. 225. *Don Diego Ortiz de Zúñiga*, *Annales ecclesiasticos y seculares de Sevilla*. Madrid, 1795. 4to. T. II. p. 121. *Don Juan de Ferreras*, *Historia de España*. Madrid, 1721. T. VII. p. 353.

* *Gobelin. Person.* loc. cit. *Comp. Chalin*, p. 53.

† *Guillelm. de Nangis*, loc. cit.

‡ *Spangenberg*, fol. 337. b. *Limburg. Chronic.* p. 20.

§ *Guillelm. de Nangis*, loc. cit. and many others.

|| *Dalin's Svea Rikes Historie*, Vol. II. c. 12. p. 496.

Greenland found in the coldness of their inhospitable climate no protection against the southern enemy who had penetrated to them from happier countries. The plague wrought great havoc among them. Nature made no allowance for their constant warfare with the elements, and the parsimony with which she had meted out to them the enjoyments of life.* In Denmark and Norway, however, people were so occupied with their own misery, that the accustomed voyages to Greenland ceased. Towering icebergs formed at the same time on the coast of East Greenland, in consequence of the general disturbance of the earth's organism; and no mortal, from that time forward, has ever seen that shore or its inhabitants.†

It has been observed that in Russia the Black Plague did not break out until 1351, after it had already passed through the south and north of Europe. In this country also, the mortality was extraordinarily great; and the same scenes of affliction and despair were exhibited, as had occurred in those nations which had already passed the ordeal—the same mode of burial, the same horrible certainty of death, the same torpor and depression of spirits. The wealthy abandoned their treasures, and gave their villages and estates to the churches and monasteries; this being, according to the notions of the age, the surest way of securing the favor of Heaven and the forgiveness of past sins. In Russia, too, the voice of nature was silenced by fear and horror. In the hour of danger, fathers and mothers deserted their children, and children their parents.‡

Of all the estimates of the number

of lives lost in Europe, the most probable is, that altogether a fourth part of the inhabitants were carried off. And if in the fourteenth century the population was 100,000,000, then it may be assumed, without exaggeration, that Europe lost during the Black Death 25,000,000 inhabitants.

That her nations could so quickly recover from so fearful a visitation, and, without retrograding more than they actually did, could so develop their energies in the following century, is a most convincing proof of the indestructibility of human society as a whole. To assume, however, that it did not suffer any essential change internally, because in appearance everything remained as before, is inconsistent with a just view of cause and effect. Many historians seem to have adopted such an opinion; accustomed, as usual, to judge of the moral condition of the people solely according to the vicissitudes of earthly power, the events of battles, and the influence of religion, but to pass over with indifference the great phenomena of nature, which modify, not only the surface of the earth, but also the human mind. Hence, most of them have touched but superficially on the "Great Mortality" of the 14th century. We for our part are convinced, that in the history of the world, the Black Death is one of the most important events which have prepared the way for the present state of Europe.

He who studies the human mind with attention, and forms a deliberate judgment on the intellectual powers which set people and states in motion, may, perhaps, find some proofs of this assertion in the following observations:—at that time, the advancement of the hierarchy was, in most countries, extraordinary; for the church acquired treasures and large properties in land, even to a greater extent than after the crusades; but experience has demonstrated, that such a state of things is ruinous to the people, and causes them to retrograde, as was evinced on this occasion.

* *Saabye*. Tagebuch in Grönland. Eineleit. XVIII. *Torfæi* Histor. Norveg. Tom. IV. L. IX. c. viii. p. 478-79. *F. G. Mansa*, De epidemiis maxime memorabilibus quæ in Dania Grassatæ sunt, et de Medicinæ statu. Partic. I. Havn. 1831. 8vo. p. 12.

† *Torfæi* Groenlandia antiqua, s. veteris Groenlandiæ descriptio. Havniæ. 1715. 8vo. p. 23. *Pontan*. Rer. danicar. Histor. Amstelod. 1631. fol. L. VII. p. 476.

‡ *Richter*, loc. cit.

After the cessation of the Black Plague, a greater fecundity in women was everywhere remarkable—a grand phenomenon, which, from its occurrence after every destructive pestilence, proves to conviction, if any occurrence can do so, the prevalence of a higher power in the direction of general organic life. Marriages were, almost without exception, prolific; and double and treble births were more frequent than at other times; under which head, we should remember the strange remark, that after the "Great Mortality" the children were said to have got fewer teeth than before; at which contemporaries were mightily shocked, and even later writers have felt surprise.

If we examine the grounds of this oft-repeated assertion, we shall find that they were astonished to see children cut twenty, or at most, twenty-two teeth, under the supposition that a greater number had formerly fallen to their share.* Some writers of authority, as, for example, the physician Savonarola,† of Ferrara, who probably looked for twenty-eight teeth in children, published their opinions on this subject. Others copied from them, without seeing for themselves, as often happens in other matters which are equally evident; and thus the world believed in the miracle of an imperfection in the human body which had been caused by the Black Plague.

The people gradually consoled themselves after the sufferings which they had undergone; the dead were lamented and forgotten; and in the stirring vicissitudes of existence, the world belonged to the living.‡

* We shall take this view of the subject from *Guillelm. de Nangis* and *Barnes*, if we read them *with attention*. Compare *Olef Dalin*, loc. cit.

† *Practica de ægritudinibus a capite usque ad pedes*. Papix, 1486. fol. Tract VI. c. vii.

‡ *Limburger Chronik*. p. 26. "After this, when, as was stated before, the Mortality, the Processions of the Flagellants, the Pilgrimages to Rome, and the Massacre of the Jews, were at an end, the world began to revive and be joyful, and the people put on new clothes."

CHAPTER V.

MORAL EFFECTS.

THE mental shock sustained by all nations during the prevalence of the Black Plague is without parallel and beyond description. In the eyes of the timorous, danger was the certain harbinger of death; many fell victims to fear, on the first appearance of the distemper,* and the most stout-hearted lost their confidence. Thus, after reliance on the future had died away, the spiritual union which binds man to his family and his fellow-creatures was gradually dissolved. The pious closed their accounts with the world; eternity presented itself to their view; their only remaining desire was for a participation in the consolations of religion, because to them death was disarmed of its sting.

Repentance seized the transgressor, admonishing him to consecrate his remaining hours to the exercise of Christian virtues. All minds were directed to the contemplation of futurity; and children, who manifest the more elevated feelings of the soul without alloy, were frequently seen, while laboring under the plague, breathing out their spirit with prayer and songs of thanksgiving.†

An awful sense of contrition seized Christians everywhere; they resolved to forsake their vices, to make restitution for past offenses, before they were summoned hence, to seek recon-

* *Chalin*, loc. cit. p. 98. *Detmar's Lübeck Chronicle*, V. I. p. 401.

† *Chronik. Dilmari* Episcop. Merseburg., Francof. 1580, fol. p. 358. *Spangenberg*, p. 338. "The lamentation was piteous; and the only remaining solace, was the prevalent anxiety, inspired by the danger, to prepare for a glorious departure; no other hope remained—death appeared inevitable. Many were hence induced to search into their own hearts, to turn to God, and to abandon their wicked courses: parents warned their children, and instructed them how to pray, and to submit to the ways of Providence: neighbors mutually admonished each other; none could reckon on a single hour's respite. Many persons, and even young children, were seen bidding farewell to the world; some with prayer, others with praises on their lips."

ciliation with their Maker, and to avert, by self-chastisement, the punishment due to their former sins. Human nature would be exalted, could the countless noble actions, which, in times of most imminent danger, were performed in secret, be recorded for the instruction of future generations. They, however, have no influence on the course of worldly events. They are known only to silent eye-witnesses, and soon fall into oblivion. But hypocrisy, illusion, and bigotry, stalk abroad undaunted; they desecrate what is noble, they pervert what is divine, to the unholy purposes of selfishness; which hurries along every good feeling in the false excitement of the age. Thus it was in the years of this plague. In the 14th century, the monastic system was still in its full vigor, the power of the religious orders and brotherhoods was revered by the people, and the hierarchy was still formidable to the temporal power. It was, therefore, in the natural constitution of society that bigoted zeal, which in such times makes a show of public acts of penance, should avail itself of the semblance of religion. But this took place in such a manner, that unbridled, self-willed penitence, degenerated into lukewarmness, renounced obedience to the hierarchy, and prepared a fearful opposition to the church, paralyzed as it was by antiquated forms.

While all countries were filled with lamentations and woe, there first arose in Hungary,* and afterward in Germany, the Brotherhood of the Flagellants, called also the Brethren of the Cross, or Cross-bearers, who took upon themselves the repentance of the people, for the sins they had committed, and offered prayers and supplications for the averting of this plague. This Order consisted chiefly of persons of the lower class, who were either actuated by sincere contrition, or who joyfully availed them-

selves of this pretext for idleness, and were hurried along with the tide of distracting frenzy. But as these brotherhoods gained in repute, and were welcomed by the people with veneration and enthusiasm, many nobles and ecclesiastics ranged themselves under their standard; and their bands were not unfrequently augmented by children, honorable women, and nuns; so powerfully were minds of the most opposite temperaments enslaved by this infatuation.* They marched through the cities, in well-organized processions, with leaders and singers; their heads covered as far as the eyes; their look fixed on the ground, accompanied by every token of the deepest contrition and mourning. They were robed in somber garments, with red crosses on the breast, back, and cap, and bore triple scourges, tied in three or four knots, in which points of iron were fixed.† Tapers and magnificent banners of velvet and cloth of gold, were carried before them; wherever they made their appearance, they were welcomed by the ringing of bells; and the people flocked from all quarters, to listen to their hymns and to witness their penance, with devotion and tears.

In the year 1349, two hundred Flagellants first entered Strasburg, where they were received with great joy, and hospitably lodged by the citizens. Above a thousand joined the brotherhood, which now assumed the appearance of a wandering tribe, and separated into two bodies, for the purpose of journeying to the north and to the south. For more than half a year, new parties arrived

* *Albert. Argentinens.* Chronic, p. 149, in *Chr. Urstisius, Germaniæ historicorum illustrium Tomus unus, Francof. 1585, fol.* *Guillelm. de Nang.* loc. cit. Comp. also the Saxon Chronicle, by *Mattheus Dresseren*, Physician and Professor at Leipsig. Wittenberg, 1596, fol. p. 340; the above-named Limburg Chronicle, and the Germaniæ Chronicon, on the origin, name, commerce, etc., of all the Teutonic nations of Germany: by *Seb. Francken*, of Wörd. Tübingen, 1534, fol. p. 201.

† *Ditmar*, loc. cit.

* *Torsæi Hist. rer. Norvegic. L. IX. c. viii. p. 478.* (Havn. 1711, fol.) *Die Cronica van der hilliger Stat van Collen, off dat tyt-boich* Coellen, 1499, fol. p. 263.

weekly; and, on each arrival, adults and children left their families to accompany them; till, at length, their sanctity was questioned and the doors of houses and churches were closed against them.* At Spires, two hundred boys, of twelve years of age and under, constituted themselves into a Brotherhood of the Cross, in imitation of the children who, about a hundred years before, had united, at the instigation of some fanatic monks, for the purpose of recovering the Holy Sepulchre. All the inhabitants of this town were carried away by the delusion; they conducted the strangers to their houses with songs of thanksgiving, to regale them for the night. The women embroidered banners for them, and all were anxious to augment their pomp: and at every succeeding pilgrimage, their influence and reputation increased.†

It was not merely some individual parts of the country that fostered them; all Germany, Hungary, Poland, Bohemia, Silesia, and Flanders, did homage to the mania; and they at length became as formidable to the secular, as they were to the ecclesiastical power. The influence of this fanaticism was great and threatening; resembling the excitement which called all the inhabitants of Europe into the deserts of Syria and Palestine, about two hundred and fifty years before. The appearance, in itself, was not novel. As far back as the 11th century, many believers, in Asia and Southern Europe, afflicted themselves with the punishment of flagellation. Dominic Loricatus, a monk of Sta. Croce d'Avellano, is mentioned as the master and model of this species of mortification of the flesh; which, according to the primitive notions of the Asiatic Anchorites, was deemed eminently Christian. The author of the solemn processions of the Flagellants, is said to have been St. Anthony; for even in his time (1231) this

kind of penance was so much in vogue, that it is recorded as an eventful circumstance in the history of the world. In 1260, the Flagellants appeared in Italy as *Devoti*. "When the land was polluted by vices and crimes,* an unexampled spirit of remorse suddenly seized the minds of the Italians. The fear of Christ fell upon all: noble and lowly, old and young, and even children of five years of age, marched through the streets with no covering but a scarf round the waist. They each carried a scourge of leathern thongs, which they applied to their limbs, amid sighs and tears, with such violence, that the blood flowed from the wounds. Not only during the day, but even by night, and in the severest winter, they traversed the cities with burning torches and banners, in thousands and tens of thousands, headed by their priests, and prostrated themselves before the altars. They proceeded in the same manner in the villages: and the woods and mountains resounded with the voices of those whose cries were raised to God. The melancholy chant of the penitent alone was heard. Enemies were reconciled, men and women vied with each other in splendid works of charity, as if they dreaded that Divine Omnipotence would pronounce on them the doom of annihilation."

The pilgrimages of the Flagellants extended throughout all the provinces of Southern Germany, as far as Saxony, Bohemia, and Poland, and even further; but at length, the priests resisted this dangerous fanaticism, without being able to extirpate the illusion, which was advantageous to the hierarchy, as long as it submitted to its sway. Regnier, a hermit of Perugia, is recorded as a fanatic preacher of penitence, with whom the extravagance originated.† In the year 1296, there was a great procession of the

* *Königshoven*, *Elsassische und Strassburgische Chronicke*. loc. cit. p. 297. f.

† *Albert. Argentin.* loc. cit. They never remained longer than one night at any place.

* Words of *Monachus Paduanus*, quoted in *Förstemann's* Treatise, which is the best upon this subject.

† *Schnurrer*, *Chronicle of the Plagues*, T. I. p. 291.

Flagellants in Strasburg;* and in 1334, fourteen years before the Great Mortality, the sermon of Venturinus, a Dominican friar, of Bergamo, induced above 10,000 persons to undertake a new pilgrimage. They scourged themselves in the churches, and were entertained in the market-places, at the public expense. At Rome, Venturinus was derided, and banished by the Pope to the mountains of Ricondona. He patiently endured all — went to the Holy Land, and died at Smyrna, 1346.† Hence we see that this fanaticism was a mania of the middle ages, which, in the year 1349, on so fearful an occasion, and while still so fresh in remembrance, needed no new founder; of whom, indeed, all the records are silent. It probably arose in many places at the same time; for the terror of death, which pervaded all nations and suddenly set such powerful impulses in motion, might easily conjure up the fanaticism of exaggerated and overpowering repentance.

The practices of the Flagellants of the 13th and 14th centuries exactly resemble each other. But if, during the Black Plague, simple credulity came to their aid, which seized, as a consolation, the grossest delusion of religious enthusiasm, yet it is evident that the leaders must have been intimately united, and have exercised the power of a secret association. Besides, the rude band was generally under the control of men of learning, some of whom, at least, certainly had other objects in view, independent

of those which ostensibly appeared. Whoever was desirous of joining the brotherhood, was bound to remain in it thirty-four days, and to have four pence per day at his own disposal, so that he might not be burthensome to any one; if married, he was obliged to have the sanction of his wife, and give the assurance that he was reconciled to all men. The Brothers of the Cross were not permitted to seek for free quarters, or even to enter a house without having been invited; they were forbidden to converse with females; and if they transgressed these rules, or acted without discretion, they were obliged to confess to the Superior, who sentenced them to several lashes of the scourge, by way of penance. Ecclesiastics had not, as such, any pre-eminence among them; according to their original law, which, however, was often transgressed, they could not become Masters, or take part in the *Secret Councils*. Penance was performed twice every day; in the morning and evening they went abroad in pairs, singing psalms, amid the ringing of the bells; and when they arrived at the place of flagellation, they stripped the upper part of their bodies and put off their shoes, keeping on only a linen dress, reaching from the waist to the ankles. They then lay down in a large circle, in different positions, according to the nature of their crime: the adulterer with his face to the ground; the perjurer on one side, holding up three fingers, etc.; and were then castigated, some more and some less, by the Master, who ordered them to rise in the words of a prescribed form.* Upon this, they scourged themselves, amid the singing of psalms and loud supplications for the averting of the plague, with genuflexions, and other ceremonies, of which contemporary writers give various accounts; and at the same time constantly boasted of their penance, that the blood of their wounds was mingled with that of the

* *Königshoven*, loc. cit.

† *Förstemann*, loc. cit. The Pilgrimages of the Flagellants of the year 1349, were not the last. Later in the 14th century this fanaticism still manifested itself several times, though never to so great an extent: in the 15th century, it was deemed necessary, in several parts of Germany, to extirpate them by fire and sword; and in the year 1710, processions of the Cross-bearers were still seen in Italy. How deeply this mania had taken root, is proved by the deposition of a citizen of Nordhäusen (1446): that his wife, in the belief of performing a Christian act, wanted to scourge her children, as soon as they were baptized.

* *Königshoven*, p. 298.

"*Stant uf durch der reinen Martel ere; Und hüte dich vor der Sünden mere.*"

Saviour.* One of them, in conclusion, stood up to read a letter, which it was pretended an angel had brought from heaven, to St. Peter's church, at Jerusalem, stating that Christ, who was sore displeased at the sins of man, had granted, at the intercession of the Holy Virgin and of the angels, that all who should wonder about for thirty-four days and scourge themselves, should be partakers of the Divine grace.† This scene caused as great a commotion among the believers as the finding of the holy spear once did at Antioch; and if any among the clergy inquired who had sealed the letter, he was boldly answered, the same who had sealed the Gospel!

All this had so powerful an effect, that the church was in considerable danger; for the Flagellants gained more credit than the priests, from whom they so entirely withdrew themselves, that they even absolved each other. Besides, they everywhere took possession of the churches, and their new songs, which went from mouth to mouth, operated strongly on the minds of the people. Great enthusiasm and originally pious feelings, are clearly distinguishable in these hymns, and especially in the chief psalm of the Cross-bearers, which is still extant, and which was sung all over Germany, in different dialects, and is probably of a more ancient date.‡ Degeneracy, however, soon crept in;

* *Guill. de Nang.* loc. cit.

† *Albert. Argentinens.* loc. cit.

‡ We meet with fragments of different lengths in the Chronicles of the times, but the only entire MS. which we possess, is in the valuable Library of President *von Meusebach*. *Massman* has had this printed, accompanied by a translation, entitled *Erläuterungen zum Wessobrunner Gebet des 8ten Jahrhunderts. Nebst ZWEIEN noch ungedruckten, GEDICHTEN DES VIERZEHNTEH JAHRHUNDERTS*, Berlin, 1824. We shall subjoin it at the end of this Treatise, as a striking document of the age. The Limburg Chronicle asserts, indeed, that it was not composed till that time, although a part, if not the whole, of it, was sung in the procession of the Flagellants, in 1260—See *Incerti auctoris Chronicon rerum per Austriam vicinasque regiones gestarum inde ab anno 1025, usque ad annum 1282*. Munich, 1827-28, p. 9.

crimes were everywhere committed; and there was no energetic man capable of directing the individual excitement to purer objects, even had an effectual resistance to the tottering church been at that early period seasonable, and had it been possible to restrain the fanaticism. The Flagellants sometimes undertook to make trial of their power of working miracles; as in Strasburg, where they attempted, in their own circle, to resuscitate a dead child: they however failed, and their unskillfulness did them much harm, though they succeeded here and there in maintaining some confidence in their holy calling, by pretending to have the power of casting out evil spirits.*

The Brotherhood of the Cross announced that the pilgrimage of the Flagellants was to continue for a space of thirty-four years; and many of the Masters had, doubtless, determined to form a lasting league against the church; but they had gone too far. So early as the first year of their establishment, the general indignation set bounds to their intrigues; so that the strict measures adopted by the Emperor Charles IV., and Pope Clement,† who, throughout the whole of this fearful period, manifested prudence and noble-mindedness, and conducted himself in a manner every way worthy of his high station, were easily put into execution.‡

The Sorbonne, at Paris, and the Emperor Charles, had already applied to the Holy See, for assistance against these formidable and heretical excesses, which had well nigh destroyed the influence of the clergy in every place, when a hundred of the Brotherhood of the Cross arrived at Avignon from

* *Trithem. Annal. Hirsaugiens.* T. II. p. 206.

† He issued a bull against them, Oct. 20, 1349. *Raynald. Trithem.* loc. cit.

‡ "But as they at last ceased to excite astonishment, were no longer welcomed by the ringing of bells, and were not received with veneration, as before, they vanished as human imaginations are wont to do." *Saxon Chronicle*, by *Matt. Dresseren*. Wittenberg, 1596, fol. p. 340, 351.

Basle, and desired admission. The Pope, regardless of the intercession of several cardinals, interdicted their public penance, which he had not authorized; and, on pain of excommunication, prohibited throughout Christendom the continuance of these pilgrimages.* Philip VI., supported by the condemnatory judgment of the Sorbonne, forbade their reception in France.† Manfred, King of Sicily, at the same time threatened them with punishment by death: and in the East, they were withstood by several bishops, among whom was Janussius, of Gnesen,‡ and Preczlav, of Breslau, who condemned to death one of their Masters, formerly a deacon; and, in conformity with the barbarity of the times, had him publicly burnt. In Westphalia, where so shortly before they had venerated the Brothers of the Cross, they now persecuted them with relentless severity; § and in the Bradenburg, as well as in all the other countries of Germany, they pursued them, as if they had been the authors of every misfortune.

The processions of the Brotherhood of the Cross undoubtedly promoted the spreading of the plague; and it is evident, that the gloomy fanaticism which gave rise to them would infuse a new poison into the already desponding minds of the people.

Still, however, all this was within the bounds of barbarous enthusiasm; but horrible were the persecutions of the Jews, which were committed in most countries, with even greater exasperation than in the 12th century, during the first Crusades. In every destructive pestilence, the common people at first attribute the mortality to poison. No instruction avails, the supposed testimony of their eyesight is to them a proof, and they authoritatively demand the victims in their rage. On whom then was it so likely to fall, as on the Jews, the usurers and the strangers who lived

at enmity with the Christians? They were everywhere suspected of having poisoned the wells or infected the air.* They alone were considered as having brought this fearful mortality upon the Christians.† They were in consequence, pursued with merciless cruelty; and either indiscriminately given up to the fury of the populace, or sentenced by sanguinary tribunals, which, with all the forms of law, ordered them to be burnt alive. In times like these, much is indeed said of guilt and innocence; but hatred and revenge bear down all discrimination, and the smallest probability magnifies suspicion into certainty. These bloody scenes, which disgraced Europe in the 14th century, are a counterpart to a similar mania of the age, which was manifested in the persecutions of witches and sorcerers; and, like these, they prove that enthusiasm, associated with hatred, and leagued with the baser passions, may work more powerfully upon whole nations, than religion and legal order; nay, that it even knows how to profit by the authority of both, in order the more surely to satiate with blood, the sword of long-suppressed revenge.

The persecution of the Jews commenced in September and October, 1348,‡ at Chillon, on the Lake of Geneva, where the first criminal proceedings were instituted against them, after they had long before been accused by the people of poisoning the wells; similar scenes followed in Bern and Freyburg, in January, 1349. Under the influence of excruciating suffering, the tortured Jews confessed themselves guilty of the crime im-

* So says the Polish historian *Dlugoss*, loc. cit., while most of his contemporaries mention only the poisoning of the wells. It is evident, that in the state of their feelings, it mattered little whether they added another still more formidable accusation.

† In those places where no Jews resided, as in Leipsic, Magdeburg, Brieg, Frankenstein, etc., the grave-diggers were accused of the crime. See *Möhlsen's History of the Sciences in the March of Brandenburg*, T. II. p. 265.

‡ See the original proceedings, in the Appendix.

* *Albert. Argentinens.* loc. cit.

† *Guillelm. de Nangis.*

‡ *Ditmar.* loc. cit.

§ *Limburg Chronicle*, p. 17.

puted to them ; and it being affirmed that poison had in fact been found in a well at Zoffingen, this was deemed a sufficient proof to convince the world ; and the persecution of the abhorred culprits thus appeared justifiable. Now, though we can take as little exception at these proceedings, as at the multifarious confessions of witches, because the interrogatories of the fanatical and sanguinary tribunals were so complicated, that by means of the rack, the required answer must inevitably be obtained ; and it is besides conformable to human nature, that crimes which are in everybody's mouth, may, in the end, be actually committed by some, either from wantonness, revenge, or desperate exasperation ; yet crimes and accusations are, under circumstances like these, merely the offspring of a revengeful, frenzied spirit in the people ; and the accusers, according to the fundamental principles of morality, which are the same in every age, are the more guilty transgressors.

Already in the autumn of 1348, a dreadful panic, caused by this supposed empoisonment, seized all nations ; in Germany especially, the springs and wells were built over, that nobody might drink of them, or employ their contents for culinary purposes ; and for a long time, the inhabitants of numerous towns and villages used only river and rain water.* The city gates were also guarded with the greatest caution : only confidential persons were admitted ; and if medicine, or any other article, which might be supposed to be poisonous, was found in the possession of a stranger,—and it was natural that some should have these things by them for their private use,—he was forced to swallow a portion of it.† By this trying state of priva-

tion, distrust, and suspicion, the hatred against the supposed poisoners became greatly increased, and often broke out in popular commotions, which only served still further to infuriate the wildest passions. The noble and the mean fearlessly bound themselves by an oath to extirpate the Jews by fire and sword, and to snatch them from their protectors, of whom the number was so small, that throughout all Germany but few places can be mentioned where these unfortunate people were not regarded as outlaws and martyred and burnt.* Solemn summonses were issued from Bern to the towns of Basle, Freyburg in Breisgau, and Strasburg, to pursue the Jews as poisoners. The Burgomasters and Senators, indeed, opposed this requisition ; but in Basle the populace obliged them to bind themselves by an oath to burn the Jews, and to forbid persons of that community from entering their city, for the space of two hundred years. Upon this, all the Jews in Basle, whose number could not have been inconsiderable, were inclosed in a wooden building, constructed for the purpose, and burnt, together with it, upon the mere outcry of the people, without sentence or trial, which indeed would have availed them nothing. Soon after, the same thing took place at Freyburg. A regular Diet was held at Bennefeld, in Alsace, where the bishops, lords, and barons, as also deputies of the counties and towns, consulted how they should proceed with regard to the Jews ; and when the deputies of Strasburg—not indeed the bishop of this town, who proved himself a violent fanatic—spoke in favor of the persecuted, as nothing criminal was substantiated against them ; a great outcry was raised, and it was vehemently asked, why, if so, they had covered their wells and removed their buckets ? A sanguinary decree was resolved upon, of which the populace, who obeyed the call of the nobles and su-

* *Hermannii Gygantis* Flores temporum, sive Chronicon Universale Lugdun. Bat. 1743. 4to, p. 139. *Hermann*, a Franciscan monk of Franconia, who wrote in the year 1349, was an eye-witness of the most revolting scenes of vengeance, throughout all Germany.

† *Guid. Cauliac*, loc. cit.

* *Hermann*. loc. cit.

perior clergy, became but the too willing executioners.* Wherever the Jews were not burnt, they were at least banished; and so being compelled to wander about, they fell into the hands of the country people, who without humanity, and regardless of all laws, persecuted them with fire and sword. At Spire the Jews, driven to despair, assembled in their own habitations, which they set on fire, and thus consumed themselves with their families. The few that remained were forced to submit to baptism; while the dead bodies of the murdered, which lay about the streets, were put into empty wine casks, and rolled into the Rhine, lest they should infect the air. The mob was forbidden to enter the ruins of the habitations that were burnt in the Jewish quarter; for the senate itself caused search to be made for the treasure, which is said to have been very considerable. At Strasburg, two thousand Jews were burnt alive in their own burial ground, where a large scaffold had been erected: a few who promised to embrace Christianity, were spared, and their children taken from the pile. The youth and beauty of several females also excited some commiseration; and they were snatched from death against their will: many, however, who made their escape from the flames, were murdered in the streets.

The senate ordered all pledges and bonds to be returned to the debtors, and divided the money among the work-people.† Many, however, refused to accept the base price of blood, and, indignant at the scenes of blood-thirsty avarice, which made the infuriated multitude forget ‡ that the

* *Albert. Argentin.*—*Königshoven*, loc. cit.

† "This was also the poison that killed the Jews," observes *Königshoven*, which he illustrates by saying, that their increase in Germany was very great, and their mode of gaining a livelihood, which, however, was the only resource left them, had engendered ill-will against them in all quarters.

‡ Many wealthy Jews, for example, were, on their way to the stake, stripped of their garments, for the sake of the gold coin that was sewed in them.—*Albert. Argentinens.*

plague was raging around them, presented it to monasteries, in conformity with the advice of their confessors. In all the countries on the Rhine, these cruelties continued to be perpetrated during the succeeding months; and after quiet was in some degree restored, the people thought to render an acceptable service to God, by taking the bricks of the destroyed dwellings, and the tombstones of the Jews, to repair churches and to erect belfries.

In Mayence alone, 12,000 Jews are said to have been put to a cruel death. The Flagellants entered that place in August; the Jews, on this occasion, fell out with the Christians, and killed several; but when they saw their inability to withstand the increasing superiority of their enemies, and that nothing could save them from destruction, they consumed themselves and their families, by setting fire to their dwellings. Thus also, in other places, the entry of the Flagellants gave rise to scenes of slaughter; and as thirst for blood was everywhere combined with an unbridled spirit of proselytism, a fanatic zeal arose among the Jews to perish as martyrs of their ancient religion. And how was it possible that they could from the heart embrace Christianity, when its precepts were never more outrageously violated? At Eslingen, the whole Jewish community burned themselves in their synagogue; * and mothers were often seen throwing their children on the pile, to prevent their being baptized, and then precipitating themselves into the flames. † In short, whatever deeds fanaticism, revenge, avarice, and desperation, in fearful combination, could instigate mankind to perform,—and where in such a case is the limit?—were executed in the year 1349, throughout Germany, Italy, and France, with impunity, and in the eyes of all the world. It seemed as if the plague gave rise to scandalous

* *Spangenberg*, loc. cit.

† *Guillelm. de Nangis.*—*Dlugoss*, loc. cit.

acts and frantic tumults, not to mourning and grief: and the greater part of those who, by their education and rank, were called upon to raise the voice of reason, themselves led on the savage mob to murder and to plunder. Almost all the Jews who saved their lives by baptism, were afterward burnt at different times; for they continued to be accused of poisoning the water and the air. Christians also, whom philanthropy or gain had induced to offer them protection, were put on the rack and executed with them.* Many Jews who had embraced Christianity, repented of their apostasy,—and, returning to their former faith, sealed it with their death.†

The humanity and prudence of Clement VI. must on this occasion also be mentioned to his honor; but even the highest ecclesiastical power was insufficient to restrain the unbridled fury of the people. He not only protected the Jews at Avignon, as far as lay in his power, but also issued two bulls, in which he declared them innocent; and admonished all Christians, though without success, to cease from such groundless persecutions.‡ The Emperor Charles IV. was also favorable to them, and sought to avert their destruction, wherever he could; but he dared not draw the sword of justice, and even found himself obliged to yield to the selfishness of the Bohemian nobles, who were unwilling to forego so favorable an opportunity of releasing themselves from their Jewish creditors, under favor of an imperial mandate.§ Duke Albert of Austria, burned and pillaged those of his cities which had persecuted the Jews,—a vain and inhuman proceeding which, moreover, is not exempt from the suspicion of covetousness; yet he was unable, in his own fortress of

Kyberg, to protect some hundreds of Jews, who had been received there, from being barbarously burnt by the inhabitants.* Several other princes and counts, among whom was Ruprecht of the Palatinate, took the Jews under their protection, on the payment of large sums: in consequence of which they were called "Jew-masters," and were in danger of being attacked by the populace and by their powerful neighbors.† These persecuted and ill-used people, except indeed where humane individuals took compassion on them at their own peril, or when they could command riches to purchase protection, had no place of refuge left but the distant country of Lithuania, where Boleslav V., Duke of Poland (1227—1279), had before granted them liberty of conscience; and King Casimir the Great (1333—1370), yielding to the entreaties of Esther, a favorite Jewess, received them, and granted them further protection: ‡ on which account, that country is still inhabited by a great number of Jews, who by their secluded habits have, more than any people in Europe, retained the manners of the middle ages.

* Anonym *Leobiens*, in *Pez*. loc. cit.

† *Spangenberg*. In the Margravate, the Jews were no better off than in the rest of Germany. Margrave *Ludwig*, the Roman, even countenanced their persecutions, of which *Kehrberg*, loc. cit. 241, gives the following official account: *Coram cunctis Christi fidelibus presentia percepturis, ego Johannes dictus de Wedel Advocatus inclity Principis Domini Ludovici, Marchionis, publice profiteor et recognosco, quod nomine Domini mei civitatem Königsberg visitavi et intravi, et ex parte Domini Marchionis Consulibus ejusdem civitatis in adjutorium mihi assumtis, Judæos inibi morantes igne cremavi, bonaque omnia eorumdem Judæorum ex parte Domini mei totaliter usurpavi et assumsi. In cujus testimonium presentibus meum sigillum appendi. Datum A.D. 1351, in Vigilia S. Matthæi Apostoli.*

‡ *Basnage*, *Histoire des Juifs*. A la Haye, 1716. 8vo. T. IX. Part 2. Liv. IX. Chap. 23. §. 12. 24. pp. 664. 679. This valuable work gives an interesting account of the state of the Jews of the middle ages. Compare *J. M. Jost's* *History of the Israelites from the time of the Maccabees to the present day*. T. VII. Berlin, 1827. 8vo. pp. 8. 262.

* *Albert. Argentinenus*.

† *Spangenberg* describes a similar scene which took place at Kostnitz.

‡ *Guillelm. de Nang.—Raynald*.

§ *Histor. Landgrav. Thuring.* in *Pistor*. loc. cit. Vol. I. p. 948.

But to return to the fearful accusations against the Jews; it was reported in all Europe, that they were in connection with secret superiors in Toledo, to whose decrees they were subject, and from whom they had received commands respecting the coining of base money, poisoning, the murder of Christian children, etc.;* that they received the poison by sea from remote parts, and also prepared it themselves from spiders, owls, and other venomous animals; but, in order that their secret might not be discovered, that it was known only to their Rabbis and rich men.† Apparently there were but few who did not consider this extravagant accusation well founded; indeed, in many writings of the 14th century, we find great acrimony with regard to the suspected poisoners, which plainly demonstrates the prejudice existing against them. Unhappily, after the confessions of the first victims in Switzerland, the rack extorted similar ones in various places. Some even acknowledged having received poisonous powder in bags, and injunctions from Toledo, by secret messengers. Bags of this description were also often found in wells, though it was not unfrequently discovered that the Christians themselves had thrown them in; probably to give occasion to murder and pilage similar instances of which may be found in the persecutions of the witches.‡

* *Albert. Argentinens.*

† *Hermann. Gygis. loc. cit.*

‡ On this subject see *Königshoven*, who has preserved some very valuable original proceedings. The most important are, the criminal examinations of ten Jews, at Chillon, on the Lake of Geneva, held in September and October, 1348.—See Appendix. They produced the most strange confessions, and sanctioned, by the false name of justice, the blood-thirsty fanaticism which lighted the funeral piles. Copies of these proceedings were sent to Bern and Strasburg, where they gave rise to the first persecutions against the Jews.—See also the original document of the offensive and defensive Alliance between *Berthold von Götz*, Bishop of Strasburg, and many powerful lords and nobles, in favor of the city of Strasburg, against Charles IV. The latter saw himself compelled, in conse-

This picture needs no additions. A lively image of the Black Plague, and of the moral evil which followed in its train, will vividly represent itself to him who is acquainted with nature and the constitution of society. Almost the only credible accounts of the manner of living, and of the ruin which occurred in private life, during this pestilence, are from Italy; and these may enable us to form a just estimate of the general state of families in Europe, taking into consideration what is peculiar in the manners of each country.

“When the evil had become universal” (says Boccaccio, speaking of Florence), “the hearts of all the inhabitants were closed to feelings of humanity. They fled from the sick and all that belonged to them, hoping by these means to save themselves. Others shut themselves up in their houses, with their wives, their children and households, living on the most costly food, but carefully avoiding all excess. None were allowed access to them; no intelligence of death or sickness was permitted to reach their ears; and they spent their time in singing and music, and other pastimes. Others, on the contrary, considered eating and drinking to excess, amusements of all descriptions, the indulgence of every gratification, and an indifference to what was passing around them, as the best medicine, and acted accordingly. They wandered day and night from one tavern to another, and feasted without moderation or bounds. In this way they endeavored to avoid all contact with the sick, and abandoned their houses and property to chance, like men whose death-knell had already tolled.

“Amid this general lamentation and woe, the influence and authority

quence, to grant to that city an amnesty for the Jewish persecutions, which in our days would be deemed disgraceful to an imperial crown. Not to mention many other documents, which no less clearly show the spirit of the 14th century, p. 1021. f.

of every law, human and divine, vanished. Most of those who were in office, had been carried off by the plague, or lay sick, or had lost so many members of their families, that they were unable to attend to their duties; so that thenceforth every one acted as he thought proper. Others, in their mode of living, chose a middle course. They ate and drank what they pleased, and walked abroad, carrying odoriferous flowers, herbs or spices, which they smelt at from time to time, in order to invigorate the brain, and to avert the baneful influence of the air, infected by the sick, and by the innumerable corpses of those who had died of the plague. Others carried their precaution still further, and thought the surest way to escape death was by flight. They therefore left the city; women as well as men abandoning their dwellings, and their relations, and retiring into the country. But of these, also, many were carried off, most of them alone and deserted by all the world, themselves having previously set the example. Thus it was, that one citizen fled from another—a neighbor from his neighbors—a relation from his relations; and in the end, so completely had terror extinguished every kinder feeling, that the brother forsook the brother—the sister the sister—the wife her husband; and at last, even the parent his own offspring, and abandoned them, unvisited and unsoothed, to their fate. Those, therefore, that stood in need of assistance fell a prey to greedy attendants; who, for an exorbitant recompense, merely handed the sick their food and medicine, remained with them in their last moments, and then not unfrequently became themselves victims to their avarice, and lived not to enjoy their extorted gain. Propriety and decorum were extinguished among the helpless sick. Females of rank seemed to forget their natural bashfulness, and committed the care of their persons, indiscriminately, to men and women of the lowest order. No longer were women, relatives or friends, found in

the houses of mourning, to share the grief of the survivors—no longer was the corpse accompanied to the grave by neighbors and a numerous train of priests, carrying wax tapers and singing psalms, nor was it borne along by other citizens of equal rank. Many breathed their last without a friend to comfort them in their last moments; and few indeed were they who departed amid the lamentations and tears of their friends and kindred. Instead of sorrow and mourning, appeared indifference, frivolity, and mirth; this being considered, especially by the females, as conducive to health. Seldom was the body followed by even ten or twelve attendants; and instead of the usual bearers and sextons, hirelings of the lowest of the populace undertook the office for the sake of gain; and accompanied by only a few priests, and often without a single taper, it was borne to the very nearest church, and lowered into the first grave that was not already too full to receive it. Among the middling classes, and especially among the poor, the misery was still greater. Poverty or negligence induced most of these to remain in their dwellings, or in the immediate neighborhood; and thus they fell by thousands; and many ended their lives in the streets, by day and by night. The stench of putrefying corpses was often the first indication to their neighbors that more deaths had occurred. The survivors, to preserve themselves from infection, generally had the bodies taken out of the houses, and laid before the doors; where the early morn found them in heaps, exposed to the affrighted gaze of the passing stranger. It was no longer possible to have a bier for every corpse,—three or four were generally laid together—husband and wife, father and mother, with two or three children, were frequently borne to the grave on the same bier; and it often happened that two priests would accompany a coffin, bearing the cross before it, and be joined on the way by several other funerals; so that

instead of one, there were five or six bodies for interment."

Thus far Boccaccio. On the conduct of the priests, another contemporary observes.* "In large and small towns, they had withdrawn themselves through fear, leaving the performance of ecclesiastical duties to the few who were found courageous and faithful enough to undertake them." But we ought not on that account to throw more blame on them than on others; for we find proofs of the same timidity and heartlessness in every class. During the prevalence of the Black Plague, the mendicant orders conducted themselves admirably, and did as much good as can be done by individual bodies, in times of great misery and destruction; when compassion, courage, and nobler feelings, are found but in the few, while cowardice, selfishness, and ill-will, with the baser passions in their train, assert the supremacy. In place of virtue which had been driven from the earth, wickedness everywhere reared her rebellious standard, and succeeding generations were consigned to the dominion of her baleful tyranny.

CHAPTER VI.

PHYSICIANS.

IF we now turn to the medical talent which encountered the "*Great Mortality*," the middle ages must stand excused, since even the moderns are of opinion that the art of medicine is not able to cope with the Oriental plague, and can afford deliverance from it only under particularly favorable circumstances.† We must bear in mind also, that human science and art appear particularly weak in great pestilences, because they have to contend with the powers of nature, of which they have no

knowledge; and which, if they had been, or could be, comprehended in their collective effects, would remain uncontrollable by them, principally on account of the disordered condition of human society. Moreover, every new plague has its peculiarities, which are the less easily discovered on the first view, because, during its ravages, fear and consternation humble the proud spirit.

The physicians of the 14th century, during the Black Death, did what human intellect could do in the actual condition of the healing art; and their knowledge of the disease was by no means despicable. They, like the rest of mankind, have indulged in prejudices, and defended them, perhaps, with too much obstinacy: some of these, however, were founded on the mode of thinking of the age, and passed current in those days, as established truths: others continue to exist to the present hour.

Their successors in the 19th century ought not therefore to vaunt too highly the pre-eminence of their knowledge, for they too will be subjected to the severe judgment of posterity—they too will, with reason, be accused of human weakness and want of foresight.

The medical faculty of Paris, the most celebrated of the 14th century, were commissioned to deliver their opinion on the causes of the Black Plague, and to furnish some appropriate regulations with regard to living, during its prevalence. This document is sufficiently remarkable to find a place here.

"We, the Members of the College of Physicians, of Paris, have, after mature consideration and consultation on the present mortality, collected the advice of our old masters in the art, and intend to make known the causes of this pestilence, more clearly than could be done according to the rules and principles of astrology and natural science; we, therefore, declare as follows:—

"It is known that in India, and the vicinity of the Great Sea, the con-

* *Guillelm. de Nangis*, p. 110.

† "Curacionem omnem respuit pestis confirmata."—*Chalrin*, p. 33.

stellations which combated the rays of the sun, and the warmth of the heavenly fire, exerted their power especially against that sea, and struggled violently with its waters. (Hence, vapors often originate which envelope the sun, and convert his light into darkness.) These vapors alternately rose and fell for twenty-eight days ; but at last, sun and fire acted so powerfully upon the sea, that they attracted a great portion of it to themselves, and the waters of the ocean arose in the form of vapor ; thereby the waters were, in some parts, so corrupted, that the fish which they contained, died. These corrupted waters, however, the heat of the sun could not consume, neither could other wholesome water, hail or snow, and dew, originate therefrom. On the contrary, this vapor spread itself through the air in many places on the earth, and enveloped them in fog.

“Such was the case all over Arabia, in a part of India ; in Crete ; in the plains and valleys of Macedonia ; in Hungary, Albania, and Sicily. Should the same thing occur in Sardinia, not a man will be left alive ; and the like will continue, so long as the sun remains in the sign of Leo, on all the islands and adjoining countries to which this corrupted sea-wind extends, or has already extended from India. If the inhabitants of those parts do not employ and adhere to the following, or similar, means and precepts, we announce to them inevitable death—except the grace of Christ preserve their lives.

“We are of opinion, that the constellations, with the aid of Nature, strive, by virtue of their divine might, to protect and heal the human race ; and to this end, in union with the rays of the sun, acting through the power of fire, endeavor to break through the mist. Accordingly, within the next ten days, and until the 17th of the ensuing month of July, this mist will be converted into a stinking deleterious rain, whereby

the air will be much purified. Now, as soon as this rain shall announce itself, by thunder or hail, every one of you should protect himself from the air ; and, as well before as after the rain, kindle a large fire of vines, green laurel, or other green wood ; wormwood and chamomile should also be burnt in great quantity in the market-places, in other densely inhabited localities, and in the houses. Until the earth is again completely dry, and for three days afterward, no one ought to go abroad in the fields. During this time the diet should be simple, and people should be cautious in avoiding exposure in the cool of the evening, at night, and in the morning. Poultry and water-fowl, young pork, old beef, and fat meat in general, should not be eaten ; but on the contrary, meat of a proper age, of a warm and dry, but on no account of a heating and exciting nature. Broth should be taken, seasoned with ground pepper, ginger, and cloves, especially by those who are accustomed to live temperately, and are yet choice in their diet. Sleep in the day-time is detrimental ; it should be taken at night until sunrise, or somewhat longer. At breakfast, one should drink little ; supper should be taken an hour before sunset, when more may be drunk than in the morning. Clear light wine, mixed with a fifth or sixth part of water, should be used as a beverage. Dried or fresh fruits, with wine, are not injurious ; but highly so without it. Beet-root and other vegetables, whether eaten pickled or fresh, are hurtful ; on the contrary, spicy pot-herbs, as sage or rosemary, are wholesome. Cold, moist, watery food is in general prejudicial. Going out at night, and even early in the morning, is dangerous, on account of the dew. Only small river fish should be used. Too much exercise is hurtful. The body should be kept warmer than usual, and thus protected from moisture and cold. Rain-water must not be employed in cooking, and every one should guard against exposure to wet

weather. If it rain, a little fine treacle should be taken after dinner. Fat people should not sit in the sunshine. Good clear wine should be selected and drunk often, but in small quantities, by day. Olive oil as an article of food, is fatal. Equally injurious are fasting and excessive abstemiousness, anxiety of mind, anger, and immoderate drinking. Young people, in autumn especially, must abstain from all these things, if they do not wish to run a risk of dying of dysentery. In order to keep the body properly open, an enema, or some other simple means, should be employed, when necessary. Bathing is injurious. Men must preserve chastity as they value their lives. Every one should impress this on his recollection, but especially those who reside on the coast, or upon an island into which the noxious wind has penetrated.”*

On what occasion these strange precepts were delivered can no longer be ascertained, even if it were an object to know it. It must be acknowledged, however, that they do not redound to the credit either of the faculty of Paris, or of the 14th century in general. This famous faculty found themselves under the painful necessity of being wise at command, and of firing a point blank shot of erudition at an enemy who enveloped himself in a dark mist, of the nature of which they had no conception. In concealing their ignorance by authoritative assertions, they suffered themselves, therefore, to be misled; and while endeavoring to appear to the world with éclat, only betrayed to the intelligent their lamentable weakness. Now some might suppose, that in the condition of the sciences of the 14th century, no intelligent physicians existed; but this is altogether at variance with the laws of human advancement, and is contradicted by history. The real knowledge of an age is shown only in

the archives of its literature. Here alone the genius of truth speaks audibly—here alone men of talent deposit the results of their experience and reflection, without vanity or a selfish object. There is no ground for believing that, in the 14th century, men of this kind were publicly questioned regarding their views; and it is, therefore, the more necessary that impartial history should take up their cause and do justice to their merits.

The first notice on this subject is due to a very celebrated teacher in Perugia, Gentilis of Foligno, who, on the 18th of June, 1348, fell a sacrifice to the plague, in the faithful discharge of his duty.* Attached to Arabian doctrines, and to the universally respected Galen, he, in common with all his contemporaries, believed in a putrid corruption of the blood in the lungs and in the heart, which was occasioned by the pestilential atmosphere, and was forthwith communicated to the whole body. He thought, therefore, that everything depended upon a sufficient purification of the air, by means of large blazing fires of odoriferous wood, in the vicinity of the healthy, as well as of the sick, and also upon an appropriate manner of living; so that the putridity might not overpower the diseased. In conformity with notions derived from the ancients, he depended upon bleeding and purging, at the commencement of the attack, for the purpose of purification; ordered the healthy to wash themselves frequently with vinegar or wine, to sprinkle their dwellings with vinegar, and to smell often at camphor, or other volatile substances. Hereupon he gave, after the Arabian fashion, detailed rules, with an abundance of different medicines, of whose healing powers wonderful things were believed. He laid little stress upon super-lunar influences, so far as respected the malady itself; on which account, he

* *Jacob. Francischini de Ambrosiis*, in the Appendix to the *Istorie Pistolesi*, in *Muratori*, Tom. XI. p. 528.

* *Gentilis de Fulgineo Consilia de Peste*. Cons. I. II. fol. 76, 77. Venet. 1514 fol.

did not enter into the great controversies of the astrologers, but always kept in view, as an object of medical attention, the corruption of the blood in the lungs and heart. He believed in a progressive infection from country to country, according to the notions of the present day; and the contagious power of the disease, even in the vicinity of those affected by plague, was, in his opinion, beyond all doubt.* On this point, intelligent contemporaries were all agreed; and in truth, it required no great genius to be convinced of so palpable a fact. Besides, correct notions of contagion have descended from remote antiquity, and were maintained unchanged in the 14th century.† So far back as the age of Plato, a knowledge of the contagious power of malignant inflammations of the eye, of which also no physician of the middle ages entertained a doubt,‡ was general among the people; § yet, in modern times, surgeons have filled volumes with partial controversies on this subject. The whole language of antiquity has adapted itself to the notions of the people, respecting the contagion of pestilential diseases; and their terms were, beyond comparison, more expressive than those in use among the moderns.||

Arrangements for the protection of the healthy against contagious diseases, the necessity of which is shown from these notions, were regarded by the ancients as useful; and by many, whose circumstances permitted it,

were carried into effect in their houses. Even a total separation of the sick from the healthy, that indispensable means of protection against infection by contact, was proposed by physicians of the 2d century after Christ, in order to check the spreading of leprosy. But it was decidedly opposed, because, as it was alleged, the healing art ought not to be guilty of such harshness.* This mildness of the ancients, in whose manner of thinking inhumanity was so often and so undisguisably conspicuous, might excite surprise, if it were anything more than apparent. The true ground of the neglect of public protection against pestilential diseases, lay in the general notion and constitution of human society,—it lay in the disregard of human life, of which the great nations of antiquity have given proofs in every page of their history. Let it not be supposed that they wanted knowledge respecting the propagation of contagious diseases. On the contrary, they were as well informed on this subject as the moderns; but this was shown where individual property, not where human life, on the grand scale, was to be protected. Hence the ancients made a general practice of arresting the progress of murrains among cattle, by a separation of the diseased from the healthy. Their herds alone enjoyed that protection which they held it impracticable to extend to human society, because they had no wish to do so.† That the governments in the 14th century were not yet so far advanced, as to put into practice general regulations for checking the plague, needs no especial proof. Physicians could, therefore, only advise public purifications of the air by means of large fires, as had often been practiced in ancient times; and they were obliged to leave it to individual fami-

*—"venenosa putredo circa partes cordis et pulmonis, de quibus exeunte venenoso vapore, periculum est in vicinitatibus." Cons. I. fol. 76, a.

† *Dr. Maclean's* notion that the doctrine of contagion was first promulgated in the year 1547, by Pope Paul III., etc., thus falls to the ground, together with all the arguments founded on it.—See *Maclean* on Epid. and Pestilent. Diseases, 8vo, 1817, Pt. II. Book II. ch. 3, 4.—*Transl. note.*

‡ *Lippitudo* contagione spectantium oculos afficit.—*Chalin de Vinario*, p. 149.

§ See the Author's *Geschichte der Heilkunde*, Vol. II. P. III.

|| Compare *Marx*, *Origines contagii*. *Caroliruh. et Bad.* 1824. 8.

* *Cæl. Aurelian.* Chron. L. IV. c. l. p. 497. *Ed. Amman.* "Sed hi ægrotantem destitutum magis imperant, quam curandum, quod a se alienum humanitas approbat medicina."

† *Geschichte der Heilkunde*, Vol. II. p. 248.

lies, either to seek safety in flight, or to shut themselves up in their dwellings,* a method which answers in common plagues, but which here afforded no complete security, because such was the fury of the disease when it was at its height, that the atmosphere of whole cities was penetrated by the infection.

Of the astral influence which was considered to have originated the "*Great Mortality*," physicians and learned men were as completely convinced as of the fact of its reality. A grand conjunction of the three superior planets, Saturn, Jupiter, and Mars, in the sign of Aquarius, which took place, according to Guy de Chauliac, on the 24th of March, 1345, was generally received as its principal cause. In fixing the day, this physician, who was deeply versed in astrology, did not agree with others; whereupon there arose various disputations, of weight in that age, but of none in ours; people, however, agreed in this—that conjunctions of the planets infallibly prognosticated great events; great revolutions of kingdoms, new prophets, destructive plagues, and other occurrences which bring distress and horror on mankind. No medical author of the 14th and 15th centuries omits an opportunity of representing them as among the general prognostics of great plagues; nor can we, for our parts, regard the astrology of the middle ages as a mere offspring of superstition. It has not only, in common with all ideas which inspire and guide mankind, a high historical importance, entirely independent of its error or truth—for the influence of both is equally powerful—but there are also contained in it, as in alchemy,

* *Chalin* assures us expressly, that many nunneries, by closing their gates, remained free from the contagion. It is worthy of note, and quite in conformity with the prevailing notions, that the continuance in a thick, moist atmosphere, was generally esteemed more advantageous and conservative, on account of its being more impenetrable to the astral influence, inasmuch as the inferior cause kept off the superior.—*Chalin*, p. 48.

grand thoughts of antiquity, of which modern natural philosophy is so little ashamed that she claims them as her property. Foremost among these, is the idea of the general lite which diffuses itself throughout the whole universe, expressed by the greatest Greek sages, and transmitted to the middle ages, through the new Platonic natural philosophy. To this impression of a universal organism, the assumption of a reciprocal influence of terrestrial bodies could not be foreign,* nor did this cease to correspond with a higher view of nature, until astrologers overstepped the limits of human knowledge with frivolous and mystical calculations.

Guy de Chauliac considers the influence of the conjunction, which was held to be all-potent, as the chief general cause of the Black Plague; and the diseased state of bodies, the corruption of the fluids, debility, obstruction, and so forth, as the especial subordinate causes.† By these, according to his opinion, the quality of the air, and of the other elements, was so altered, that they set poisonous fluids in motion toward the inward parts of the body, in the same manner as the magnet attracts iron; whence there arose in the commencement fever and the spitting of blood; afterward, however, a deposition in the form of glandular swellings and inflammatory boils. Herein the notion of an epidemic constitution was set forth clearly, and conformably to the spirit of the age. Of contagion, Guy de Chauliac was completely convinced. He sought to protect himself against it by the usual means; ‡ and it was

* This was called *Affluxus*, or *Forma specifica*, and was compared to the effect of a magnet on iron, and of amber on chaff.—*Chalin de Vinaris*, p. 23.

† *Causa universalis agens*—*causa particularis patiens*. To this correspond, in *Chalin*, the expressions *Causa superior et inferior*.

‡ Purging with aloëtic pills; bleeding; purification of the air by means of large fires; the use of treacle; frequent smelling of volatile substances, of which certain "poma" were prepared; the internal use of Armenian bole,—a plague-remedy derived from the Arabians, and, throughout the middle ages,

probably he who advised Pope Clement VI. to shut himself up while the plague lasted. The preservation of this pope's life, however, was most beneficial to the city of Avignon, for he loaded the poor with judicious acts of kindness, took care to have proper attendants provided, and paid physicians himself to afford assistance wherever human aid could avail—an advantage which, perhaps, no other city enjoyed.* Nor was the treatment of plague-patients in Avignon by any means objectionable; for, after the usual depletions by bleeding and aperients, where circumstances required them, they endeavored to bring the buboes to suppuration; they made incisions into the inflammatory boils, or burned them with a red-hot iron, a practice which at all times proves salutary, and in the Black Plague saved many lives. In this city, the Jews, who lived in a state of the greatest filth, were most severely visited, as also the Spaniards, whom Chalin accuses of great intemperance.†

Still more distinct notions on the causes of the plague were stated to his contemporaries in the 14th century, by Galeazzo di Santa Sofia, a learned man, a native of Padua, who likewise treated plague-patients at Vienna,‡ though in what year is undetermined. He distinguishes carefully *pestilence* from *epidemy* and *endemy*. The common notion of the two first accords exactly with that of an epidemic constitution, for both consist, according to him, in an unknown change or corruption of the air; with this difference, that *pestilence* calls forth diseases of different kinds; *epidemy*, on the contrary, always the same disease. As an example of an *epidemy*, he adduces a cough (influenza)

much in vogue, and very improperly used; and the employment of acescent food, in order to resist putridity. *Guy de Chauliac* appears to have recommended flight to many. Loc. citat. p. 115. Compare *Chalin*, L. II., who gives most excellent precepts on this subject.

* *Auger. de Biterris*, loc. cit.

† L. I. c. 4. p. 39.

‡ Fol. 32. loc. cit.

which was observed in all climates at the same time, without perceptible cause; but he recognized the approach of a *pestilence*, independently of unusual natural phenomena, by the more frequent occurrence of various kinds of fever, to which the modern physicians would assign a nervous and putrid character. The *endemy* originates, according to him, only in local telluric changes—in deleterious influences which develop themselves in the earth and in the water, without a corruption of the air. These notions were variously jumbled together in his time, like everything which human understanding separates by too fine a line of limitation. The estimation of cosmical influences, however, in the *epidemy* and *pestilence* is well worthy of commendation; and Santa Sofia, in this respect, not only agrees with the most intelligent authors of the 14th and 15th centuries, but he has also promulgated an opinion which must, even now, serve as a foundation for our scarcely commenced investigations into cosmical influences.* *Pestilence* and *epidemy* consist not in alterations of the four primary qualities,† but in a corruption of the air, powerful, though quite immaterial, and not cognoscible by the senses;—(corruptio aëris non substantialis, sed qualitativa) in a disproportion of the imponderables in the atmosphere, as it would be expressed by the moderns.‡ The causes of the *pestilence* and *epidemy* are, first of all, astral influences, especially on occasion of planetary conjunctions; then exten-

* *Galeacii de Sancta Sophia Liber de Febribus*. Venet. 1514, fol. (Printed together with *Guillelmus Brixiensis*, *Marsilius de Sancta Sophia*, *Ricardus Parisiensis*.) fol. 29. seq.

† Warmth, cold, dryness, and moisture.

‡ The talented *Chalin* entertains the same conviction, "Obscurum interdum esse vitium aëris, sub pestis initia et menses primos, hoc est argumento, quod cum nec odore tetra gravis, nec turpi colore fadatus fuerit, sed purus, tenuis, frigidus, qualis in montosis et asperis locis esse solet, et tranquillius, vehementissima sit tamen pestilentia infestaque," etc. p. 28. The most recent observers of malaria have stated nothing more than this.

side putrefaction of animal and vegetable bodies, and terrestrial corruptions (*corruptio in terra*); to which also bad diet and want may contribute. Santa Sofia considers the putrefaction of locusts, that had perished in the sea and were again thrown up, combined with astral and terrestrial influences, as the cause of the pestilence in the eventful year of the "*Great Mortality*."

All the fevers which were called forth by the *pestilence*, are, according to him, of the putrid kind; for they originate principally from putridity of the heart's blood, which inevitably follows the inhalation of infected air. The Oriental Plague is, sometimes, but by no means always, occasioned by *pestilence* (?), which imparts to it a character (*qualitas occulta*) hostile to human nature. It originates frequently from other causes, among which, this physician was aware that contagion was to be reckoned; and it deserves to be remarked, that he held epidemic small-pox and measles to be infallible forerunners of the plague, as do the physicians and people of the East* at the present day.

In the exposition of his therapeutic views of the plague, a clearness of intellect is again shown by Santa Sofia, which reflects credit on the age. It seemed to him to depend, 1st, on an evacuation of putrid matters, by purgatives and bleeding: yet he did not sanction the employment of these means indiscriminately, and without consideration; least of all where the condition of the blood was healthy. He also declared himself decidedly against bleeding *ad deliquium* (*venæ sectio eradicativa*). 2d, Strengthening of the heart and prevention of putrescence. 3d, Appropriate regimen. 4th, Improvement of the air. 5th, Appropriate treatment of tumid glands and inflammatory boils, with emollient, or even stimulating poultices (mustard, lily-bulbs), as well as with red-hot gold and iron. Lastly, 6th, At

tention to prominent symptoms. The stores of the Arabian pharmacy, which he brought into action to meet all these indications, were indeed very considerable; it is to be observed, however, that, for the most part, gentle means were accumulated, which, in case of abuse, would do no harm; for the character of the Arabian system of medicine, whose principles were everywhere followed at this time, was mildness and caution. On this account, too, we cannot believe that a very prolix treatise by Marsigli di Santa Sofia,* a contemporary relative of Galeazzo, on the prevention and treatment of plague, can have caused much harm, although perhaps, even in the 14th century, an agreeable latitude and confident assertions respecting things which no mortal has investigated, or which it is quite a matter of indifference to distinguish, were considered as proofs of a valuable practical talent.

The agreement of contemporary and later writers, shows that the published views of the most celebrated physicians of the 14th century, were those generally adopted. Among these, Chalin de Vinario is the most experienced. Though devoted to astrology, still more than his distinguished contemporary, he acknowledges the greater power of terrestrial influences, and expresses himself very sensibly on the indisputable doctrine of contagion, endeavoring thereby to apologize for many surgeons and physicians of his time, who neglected their duty.† He

* *Tractatus de Febribus*, fol. 48.

† *De Peste Liber*, pura latinitate donatus a *Jacobo Dalechampio*. Lugdun. 1552. 16. p. 40. 188. "Longe tamen plurimi congressu eorum qui fuerunt in locis pestilentibus periclitantur et gravissime, quoniam e causa duplici, nempe et aëris vitio, et eorum qui versantur nobiscum, vitio. Hoc itaque modo fit, ut unus accessu in totam modo familiam, modo civitatem, modo villam, pestis invehatur." Compare p. 20, "Solæ privatorum aedes pestem sentiunt, si adeat qui in pestilenti loco versatus est."—"Nobis proximi ipsi sumus, nemoque est tanta occæcatus amentia, qui de sua salute potius quam aliorum sollicitus non sit, maxime in contagione tam cita et rapida." Rather a loose principle, which might greatly

* Compare *Enr. de Wolmar*, Abhandlung über die Pest. Berlin, 1827. 8vo.

asserted boldly, and with truth, "that all epidemic diseases might become contagious,* and all fevers epidemic," which attentive observers of all subsequent ages have confirmed.

He delivered his sentiments on blood-letting with sagacity, as an experienced physician; yet he was unable, as may be imagined, to moderate the desire for bleeding shown by the ignorant monks. He was averse to draw blood from the veins of patients under fourteen years of age; but counteracted inflammatory excitement in them by cupping; and endeavored to moderate the inflammation of the tumid glands by leeches. Most of those who were bled, died; he therefore reserved this remedy for the plethoric; especially for the papal courtiers, and the hypocritical priests, whom he saw gratifying their sensual desires, and imitating Epicurus, while they pompously pretended to follow Christ.† He recommended burning the boils with a red-hot iron, only in the plague without fever, which occurred in single cases; ‡ and was always ready to correct those over-hasty surgeons, who, with fire and violent remedies, did irremediable injury to their patients.§ Michael Savonarola, professor in Ferrara (1462), reasoning on the susceptibility of the human frame to the influence of pestilential infection, as the cause of such various modifications of disease, expresses himself as a modern physician would on this point; and an adoption of the principle of contagion, was the foun-

encourage low sentiments, and much endanger the honor of the medical profession, but which in *Chalin*, who was aware of the impossibility of avoiding contagion in uncleanly dwellings, is so far excusable, that he did not apply it to himself.

* *Morbos omnes pestilentes esse contagiosos, audacter equidem pronuntio et assevero.* p. 149.

† *Ibid.* p. 97. 166. "Qualis (vita) esse solet eorum, qui sacerdotiorum et cultus divini prætextu, genio plus satis indulgent et obsequuntur, ac Christum speciosis titulis eminentes, Epicurum imitantur." Certainly a remarkable freedom of sentiment for the 14th century.

‡ *Ibid.* p. 183. 151.

§ *Ibid.* p. 159. 189.

dation of his definition of the plague.* No less worthy of observation are the views of the celebrated Vaescus of Taranta, who, during the final visitation of the Black Death, in 1382, practiced as a physician at Montpellier, and handed down to posterity what has been repeated in innumerable treatises on plague, which were written during the 15th and 16th centuries.†

Of all these notions and views regarding the plague, whose development we have represented, there are two especially, which are prominent in historical importance:—1st, The opinion of learned physicians, that the *pestilence*, or epidemic constitution, is the *parent of various kinds of disease*; that the plague sometimes, indeed, but by no means always, originates from it; that, to speak in the language of the moderns, the *pestilence* bears the same relation to contagion, that a predisposing cause does to an occasional cause: and 2ndly, the universal conviction of the contagious power of that disease.

Contagion gradually attracted more notice: it was thought that in it, the most powerful occasional cause might be avoided; the possibility of protecting whole cities by separation became gradually more evident; and so horrifying was the recollection of the eventful year of the "*Great Mortality*," that before the close of the 14th century, ere the ill effects of the Black Plague had ceased, nations endeavored to guard against the return of this enemy, by an earnest and effectual defense.

The first regulation which was issued for this purpose, originated with Viscount Bernabo, and is dated the 17th Jan. 1374. Every plague-

* *Canonica de Febribus, ad Raynerium Siculum, 1487, s. 1. cap. 10, sine pag.* "Febbris pestilentialis est febris contagiosa ex ebullitione putrefactiva in altero quatuor humorum cordi propinquorum principaliter."

† *Valesci de Tharanta Philonium. Lugduni, 1535. 8. L. VII. c. 18. fol. 40r. b. seq.*—Compare *Astruc. Mémoires pour servir à l'Histoire de la Faculté de Médecine de Montpellier.* Paris, 1767. 4. p. 208.

patient was to be taken out of the city into the fields, there to die or to recover. Those who attended upon a plague-patient, were to remain apart for ten days, before they again associated with anybody. The priests were to examine the diseased, and point out to special commissioners the persons infected; under punishment of the confiscation of their goods, and of being burned alive. Whoever imported the plague, the state condemned his goods to confiscation. Finally, none, except those who were appointed for that purpose, were to attend plague-patients, under penalty of death and confiscation.*

These orders, in correspondence with the spirit of the 14th century, are sufficiently decided to indicate a recollection of the good effects of confinement, and of keeping at a distance those suspected of having plague. It was said that Milan itself, by a rigorous barricado of three houses in which the plague had broken out, maintained itself free from the "*Great Mortality*," for a considerable time; † and examples of the preservation of individual families, by means of a strict separation, were certainly very frequent. That these orders must have caused universal affliction from their uncommon severity, as we know to have been especially the case in the city of Reggio, may be easily conceived; but Bernabo did not suffer himself to be deterred from his purpose by fear—on the contrary, when the plague returned in the year 1383, he forbade the admission of people from infected places into his territories, on pain of death.‡ We have now, it is true, no account how far he succeeded, yet it is to be supposed that he arrested the

disease, for it had long lost the property of the Black Death, to spread abroad in the air the contagious matter which proceeded from the lungs, charged with putridity, and to taint the atmosphere of whole cities by the vast numbers of the sick. Now that it had resumed its milder form, so that it infected only by contact, it admitted of being confined within individual dwellings, as easily as in modern times.

Bernabo's example was imitated; nor was there any century more appropriate for recommending to governments strong regulations against the plague, than the 14th; for when it broke out in Italy, in the year 1399, and still demanded new victims, it was for the 16th time; without reckoning frequent visitations of measles and small-pox. In this same year, Viscount John, in milder terms than his predecessor, ordered that no stranger should be admitted from infected places, and that the city gates should be strictly guarded. Infected houses were to be ventilated for at least eight or ten days, and purified from noxious vapors by fires, and by fumigations with balsamic and aromatic substances. Straw, rags, and the like, were to be burned; and the bedsteads which had been used, set out for four days in the rain or the sunshine, so that, by means of the one or the other, the morbid vapor might be destroyed. No one was to venture to make use of clothes or beds out of infected dwellings, unless they had been previously washed and dried either at the fire or in the sun. People were, likewise, to avoid, as long as possible, occupying houses which had been frequented by plague-patients.*

We cannot precisely perceive in these an advance toward general regulations; and perhaps people were convinced of the insurmountable impediments which opposed the separation of open inland countries, where bodies of people connected together

* *Chronicon Regiense, Muratori, Tom. XVIII. p. 82.*

† *Adr. Chenot, Hinterlassene Abhandlungen über die ärztlichen und politischen Anstalten bei der Pestseuche.—Wien, 1798, 8vo. p. 146.* From this period it was common in the middle ages to barricade the doors and windows of houses infected with plague, and to suffer the inhabitants to perish without mercy.—*S. Möhsen, loc. cit.*

‡ *Chron. Reg. loc. cit.*

* *Muratori, Tom. XVI. p. 560.—Compare Chenot, loc. cit. p. 146.*

could not be brought, even by the most obdurate severity, to renounce the habit of a profitable intercourse.

Doubtless it is nature which has done the most to banish the Oriental plague from western Europe, where the increasing cultivation of the earth, and the advancing order in civilized society, have prevented it from remaining domesticated; which it most probably was in the more ancient times.

In the 15th century, during which it broke out seventeen times in different places in Europe,* it was of the more consequence to oppose a barrier to its entrance from Asia, Africa, and Greece (which had become Turkish); for it would have been difficult for it to maintain itself indigenously any longer. Among the southern commercial states, however, which were called on to make the greatest exertions to this end, it was principally Venice, formerly so severely attacked by the Black Plague, that put the necessary restraint upon the perilous profits of the merchant. Until toward the end of the 15th century, the very considerable intercourse with the East was free and unimpeded. Ships of commercial cities had often brought over the plague: nay, the former irruption of the "*Great Mortality*" itself had been occasioned by navigators. For, as in the latter end of Autumn, 1347, four ships full of plague-patients returned from the Levant to Genoa, the disease spread itself there with astonishing rapidity. On this account, in the following year, the Genoese forbade the entrance of suspected ships into their port. These sailed to Pisa and other cities on the coast, where already nature had made such mighty preparations for the reception of the Black Plague, and what we have already described took place in consequence.†

In the year 1485, when, among the cities of northern Italy, Milan especially felt the scourge of the plague, a special council of health, consisting of

three nobles, was established at Venice, who probably tried everything in their power to prevent the entrance of this disease, and gradually called into activity all those regulations which have served in later times as a pattern for the other southern states of Europe. Their endeavors were, however, not crowned with complete success; on which account their powers were increased, in the year 1504, by granting them the power of life and death over those who violated the regulations.* Bills of health were probably first introduced in the year 1527, during a fatal plague † which visited Italy for five years (1525-30), and called forth redoubled caution.

The first lazarettos were established upon islands at some distance from the city, seemingly as early as the year 1485. Here all strangers coming from places where the existence of plague was suspected were detained. If it appeared in the city itself, the sick were dispatched with their families to what was called the Old Lazaretto, were there furnished with provisions and medicines, and, when they were cured, were detained, together with all those who had had intercourse with them, still forty days longer in the New Lazaretto, situated on another island. All these regulations were every year improved, and their needful rigor was increased, so that from the year 1585 onward, no appeal was allowed from the sentence of the Council of Health; and the other commercial nations gradually came to the support of the Venetians, by adopting corresponding regulations.‡ Bills of health, however, were not general until the year 1665.§

The appointment of a forty-days' detention, whence quarantines derive their name, was not dictated by ca-

* Papon, loc. cit.

† Chenot, p. 145.

* *Le Bret*, Staatsgeschichte der Republik Venedig. Riga, 1775. 4, Part II. Div. 2. p. 752.

† *Zagata*, Cronica di Verona, 1744. 4, III. p. 93.

‡ *Le Bret*, loc. cit. Comp. Hamburger Remarquens of the year 1700, pp. 282 and 305.

§ Göttinger gelehrte Anzeigen, 1772, p. 22.

price, but probably had a medical origin, which is derivable in part from the doctrine of critical days; for the fortieth day, according to the most ancient notions, has been always regarded as the last of ardent diseases, and the limit of separation between these and those which are chronic. It was the custom to subject lying-in women for forty days to a more exact superintendence. There was a good deal also said in medical works of forty-day epochs in the formation of the fœtus, not to mention that the alchemists expected more durable revolutions in forty days, which period they called the philosophical month.

This period being generally held to prevail in natural processes, it appeared reasonable to assume, and legally to establish it, as that required for the development of latent principles of contagion, since public regula-

tions cannot dispense with decisions of this kind, even though they should not be wholly justified by the nature of the case. Great stress has likewise been laid on theological and legal grounds, which were certainly of greater weight in the fifteenth century than in modern times.*

On this matter, however, we cannot decide, since our only object here is to point out the origin of a political means of protection against a disease, which has been the greatest impediment to civilization within the memory of man; a means, that, like Jenner's vaccine, after the small-pox had ravaged Europe for twelve hundred years, has diminished the check which mortality puts on the progress of civilization, and thus given to the life and manners of the nations of this part of the world a new direction, the result of which we cannot foretell.

APPENDIX.

I.

THE ANCIENT SONG OF THE FLAGELLANTS.

ACCORDING TO MASSMANN'S EDITION, COMPARED WITH THE MS. BY
PROFESSOR LACHMANN.

(Original.)

SVE siner sele wille pleghen
De sal gelden unde weder geuen
So wert siner sele raed
Des help uns leue herre goed
5 Nu tredet here we botsen wille
Vle wi io de hetsen helle
Lucifer is en bose geselle
Sven her hauet
Mit peke he en lauet
10 Datz vle wi ef wir hauen sin
Des help uns maria koninghin
Das wir dines kindes hulde win
Jesus crist de wart ke vanghen
An en cruce wart he ge hanghen
15 Dat cruce wart des bloddes rod
Wer klaghen sin marter unde sin dod

(Translation.)

WHOE'ER to save his soul is fain,
Must pay and render back again.
His safety so shall he consult:
Help us, good Lord, to this result.
5 Ye that repent your crimes, draw nigh.
From the burning hell we fly,
From Satan's wicked company,
Whom he leads
With pitch he feeds.
10 If we be wise we this shall flee.
Maria! Queen! we trust in thee,
To move thy Son to sympathy.
Jesus Christ was captive led,
And to the cross was riveted.
15 The cross was reddened with his gore
And we his martyrdom deplore.

* The forty days' duration of the Flood, the forty days' sojourn of Moses on Mount Sinai, Jesus's fast for the same length of time in the wilderness; lastly, what is called the Saxon term (Sächsische Frist), which lasts for forty days, etc. Compare *G. W. Wedel, Centuria Exercitationum Medico-philologicarum: De Quadragesima Medica. Jenæ, 1701. 4 Dec. IV. p. 16.*

- Sunder war mide wilt tu mi lonen
 Dre negele unde en dornet crone
 Das cruce vrone en sper en stich
- 20 Sunder datz leyd ich dor dich
 Was wltu nu liden dor mich
 So rope wir herre mit luden done
 Unsen denst den nem to lone
 Be hode uns vor der helle nod
- 25 Des bidde wi dich dor dinen dod
 Dor god vor gete wi unse blot
 Dat is uns tho den suden guot
 Maria muoter koninginge
 Dor dines leuen kintes minne
- 30 Al unse nod si dir ghe klaghet
 Des help uns moter maghet reyne.
 De erde beuet och kleuen de steyne
 Lebe hertze du salt weyne
 Wir wenen trene mit den oghen
- 35 Unde hebben des so guden louen
 Mit unsen sinnen unde mit hertenzen
 Dor uns leyd crist vil manighen smertzen
 Nu slaed w sere
 Dor cristus ere.
- 40 Dor god nu latet de sunde mere
 Dor god nu latet de sunde varen
 Se wil sich god ouer uns en barmen
 Maria stund in grozten noden
 Do se ire leue kint sa doden
- 45 En svert dor ire sele snet
 Sunder dat la di wesen led
 In korter vrist
 God tormich ist
 Jesus wart gelauet mid gallen
- 50 Des sole wi an en cruce vallen
 Er heuet uch mit uwen armen
 Dat sic god ouer uns en barme
 Jesus dorch dine namen dry
 Nu make uns hir van sunde vry
- 55 Jesus dor dine wnden rod
 Be hod uns vor den gehen dod
 Dat he sende sinen geist
 Und uns dat kortelike leist
 De vrowe unde man ir e tobreken
- 60 Dat wil god selven an en wreken
 Sveuel pik und och de galle
 Dat gutet de duuel in se alle
 Vor war sint se des duuels spot
 Dor vor behode uns herre god
- 65 De e de ist en reyne leuen
 De had uns god selven gheuen
 Ich rade uch wrowen unde mannen
 Dor god gy solen houard annen
 Des biddet uch de arme sele
- 70 Dorch god nu latet houard mere
 Dor god nu latet houard varen
 So wil sich god ouer uns en barmen
 Cristus rep in hemelrike
 Sinen engelen al gelike.
- 75 De cristenheit wil mi ent wichen
 Des wil lan och se vor gaen
 Marie bat ire kint so sere
 Leue kint la se di boten
 Dat wil ich sceppen dat se moten
- 80 Bekeran sich.
 Des bidde ich dich

- "Sinner, canst thou to me atone?
 Three pointed nails, a thorn crown,
 The holy cross, a spear, a wound,
 These are the cruel pangs I found.
 What wilt thou, sinner, bear for me?"
 Lord, with loud voice we answer thee,
 Accept our service in return,
 And save us lest in hell we burn.
- 25 We, through thy death, to thee have sued.
 For God in heaven we shed our blood:
 This for our sins will work to good.
 Blessed Maria! Mother! Queen!
 Through thy loved Son's redeeming mean
 Be all our wants to thee portrayed.
- 30 Aid us, Mother! spotless maid!
 Trembles the earth, the rocks are rent,*
 Fond heart of mine, thou must relent.
 Tears from our sorrowing eyes we weep;
 Therefore so firm our faith we keep
 With all our hearts—with all our senses.
 Christ bore his pangs for our offenses.
 Ply well the scourge for Jesus' sake,
 And God through Christ your sins shall take.
- 40 For love of God abandon sin.
 To mend your vicious lives begin,
 So shall we his mercy win.
 Direful was Maria's pain
 When she beheld her dear One slain.
- 45 Pierced was her soul as with a dart:
 Sinner, let this affect thy heart.
 The time draws near
 When God in anger shall appear.
 Jesus was refreshed with gall:
- 50 Prostrate crosswise let us fall,
 Then with uplifted arms arise,
 That God with us may sympathize.
 Jesus, by thy titles three,†
 From our bondage set us free.
- 55 Jesus, by thy precious blood,
 Save us from the fiery flood.
 Lord, our helplessness defend,
 And to our aid thy Spirit send.
 If man and wife their vows should break
- 60 God will on such his vengeance wreak.
 Brimstone and pitch, and mingled gall,
 Satan pours on such sinners all.
 Truly, the devil's scorn are they:
 Therefore, O Lord, thine aid we pray.
- 65 Wedlock's an honorable tie
 Which God himself doth sanctify.
 By this warning, man, abide,
 God shall surely punish pride.
 Let your precious soul entreat you,
- 70 Lay down pride lest vengeance meet you.
 I do beseech ye, pride forsake,
 So God on us shall pity take.
 Christ in heaven, where he commands,
 Thus addressed his angel bands:—
- 75 "Christendom dishonors me,
 Therefore her ruin I decree."
 Then Mary thus implored her Son:—
 "Penance to thee, loved Child, be done;
 That she repent be mine the care;
- 80 Stay then thy wrath, and hear my prayer."
 Ye liars!

* We hence perceive with what feelings subterraneous thunders were regarded by the people.

† For the sake of thy Trinity.

Gi logenere
 Gy meynen ed sverer
 Gi bichten reyne und lan de sunde uch
 ruwen
 85 So wil sich god in uch vor nuwen
 Owe du arme wokerere
 Du bringest en lod up en punt
 Du senket din an der helle grunt
 Ir morder und ir straten rouere
 90 Ir sint dem leuen gode un mere
 Ir ne wilt uch ouer nemende barmen
 Des sin gy eweliken vor loren
 Were dusse bote nicht ge worden
 De cristenheit wer gar vorsunden
 95 De leyde duuel had se ge bunden
 Maria had lost unsen bant
 Sunder ich saghe di leue mere
 Sunte peter is portenere
 Wende dich an en he letset dich in
 100 He bringhet dich vor de koninghin
 Leue herre sunte Michahel
 Du bist en plegher aller sel
 Be hode uns vor der helle nod
 Dat do dor dines scepers dod.

Ye that break your sacrament,
 Shrive ye thoroughly and repent.
 Your heinous sins sincerely rue,
 85 So shall the Lord your hearts renew.
 Woel usurer, though thy wealt h
 abound,
 For every ounce thou mak'st a pound
 Shall sink thee to the hell profound.
 Ye murd'ers, and ye robbers all,
 90 The wrath of God on you shall fall.
 Mercy ye ne'er to others show,
 None shall ye find; but endless woe.
 Had it not been for our contrition,
 All Christendom had met perdition.
 95 Satan had bound her in his chain;
 Mary hath loosed her bonds again.
 Glad news I bring thee, sinful mortal,
 In heaven Saint Peter keeps the portal,
 Apply to him with suppliant mien,
 100 He bringeth thee before thy Queen.
 Benignant Michael, blessed saint,
 Guardian of souls, receive our plaint.
 Through thy Almighty Maker's death,
 Preserve us from the hell beneath.

II.

EXAMINATION OF THE JEWS ACCUSED
OF POISONING THE WELLS.*

ANSWER FROM THE CASTELLAN OF
 CHILLON TO THE CITY OF STRAS-
 BURG, TOGETHER WITH A COPY OF
 THE INQUISITION AND CONFESSION
 OF SEVERAL JEWS CONFINED IN THE
 CASTLE OF CHILLON ON SUSPICION
 OF POISONING. ANNO 1348.

To the Honorable the Mayor, Senate,
 and Citizens of the City of Stras-
 burg, the Castellan of Chillon, Dep-
 uty of the Bailiff of Chablais, send-
 eth greeting with all due submission
 and respect.

Understanding that you desire to
 be made acquainted with the confes-
 sion of the Jews, and the proofs
 brought forward against them, I certi-
 fy, by these presents, to you, and each
 of you that desires to be informed,
 that they of Berne have had a copy of

* An appearance of justice having been given to all later persecutions by these proceedings, they deserve to be recorded as important historical documents. The original is in Latin, but we have preferred the German translation in Königshoven's Chronicle, p. 1029.

the inquisition and confession of the Jews who lately resided in the places specified, and who were accused of putting poison into the wells and several other places: as also the most conclusive evidence of the truth of the charge preferred against them. Many Jews were put to the question, others being excused from it, because they confessed, and were brought to trial and burnt. Several Christians, also, who had poison given them by the Jews for the purpose of destroying the Christians, were put on the wheel and tortured. This burning of the Jews and torturing of the said Christians took place in many parts of the county of Savoy.

Fare you well.

THE CONFESSION MADE ON THE 15TH DAY OF SEPTEMBER, IN THE YEAR OF OUR LORD 1348, IN THE CASTLE OF CHILLON, BY THE JEWS ARRESTED IN NEUSTADT, ON THE CHARGE OF POISONING THE WELLS, SPRINGS, AND OTHER PLACES; ALSO FOOD, ETC., WITH THE DESIGN OF DESTROYING AND EXTIRPATING ALL CHRISTIANS.

I. Balavignus, a Jewish physician. inhabitant of Thonon, was arrested at

Chillon in consequence of being found in the neighborhood. He was put for a short time to the rack, and on being taken down, confessed, after much hesitation, that, about ten weeks before, the Rabbi Jacob of Toledo, who, because of a citation, had resided at Chamberi since Easter, sent him, by a Jewish boy, some poison in the mummy of an egg: it was a powder sewed up in a thin leathern pouch accompanied by a letter, commanding him on penalty of excommunication, and by his required obedience to the law, to throw this poison into the larger and more frequented wells of the town of Thonon, to poison those who drew water there. He was further enjoined not to communicate the circumstance to any person whatever, under the same penalty. In conformity with this command of the Jewish rabbis and doctors of the law, he, Balavignus, distributed the poison in several places, and acknowledged having one evening placed a certain portion under a stone in a spring on the shore at Thonon. He further confessed that the said boy brought various letters of a similar import, addressed to others of his nation, and particularly specified some directed severally to Mossoiet, Banditon, and Samoieto, of Neustadt; to Musseo Abramo and Aquetus of Montreantz, Jews residing at Thurn in Vivey; to Benetonus and his son at St. Moritz; to Vivianus Jacobus, Aquetus and Sonetus, Jews at Aquani.—Several letters of a like nature were sent to Abram and Musset, Jews at Moncheoli; and the boy told him that he had taken many others to different and distant places, but he did not recollect to whom they were addressed. Balavignus further confessed that, after having put the poison into the spring at Thonon, he had positively forbidden his wife and children to drink the water, but had not thought fit to assign a reason. He avowed the truth of this statement, and, in the presence of several credible witnesses, swore by his Law, and the Five Books of Moses, to every item of his deposition.

On the day following, Balavignus, voluntarily and without torture, ratified the above confession verbatim before many persons of character, and, of his own accord, acknowledged that on returning one day from Tour near Vivey, he had thrown into a well below Mustruez, namely, that of La Cone-rayde, a quantity of the poison tied up in a rag, given to him for the purpose by Aquetus of Montreantz, an inhabitant of the said Tour: that he had acquainted Manssiono, and his son Delosaz, residents of Neustadt, with the circumstance of his having done so, and advertised them not to drink of the water. He described the color of the poison as being red and black.

On the nineteenth day of September, the above-named Balavignus confessed, without torture, that about three weeks after Whitsuntide, a Jew named Mussus told him that he had thrown poison into the well, in the custom-house of that place, the property of the Borneller family; and that he no longer drank the water of this well, but that of the lake. He further deposed that Mussus informed him that he had also laid some of the poison under the stones in the custom-house at Chillon. Search was accordingly made in this well, and the poison found: some of it was given to a Jew by way of trial, and he died in consequence. He also stated that the rabbis had ordered him and other Jews to refrain from drinking of the water for nine days after the poison was infused into it; and immediately on having poisoned the waters, he communicated the circumstance to the other Jews. He, Balavignus, confessed that about two months previously, being at Evian, he had some conversation on the subject with a Jew called Jacob, and among other things, asked him whether he also had received writings and poison, and was answered in the affirmative; he then questioned him whether he had obeyed the command, and Jacob replied that he had not, but had given the poison to Savetus, a Jew, who had thrown it into the well de Morer at Evian.

Jacob also desired him, Balavignus, to execute the command imposed on him with due caution. He confessed that Aquetus of Montreantz had informed him that he had thrown some of the poison into the well above Tour, the water of which he sometimes drank. He confessed that Samolet had told him that he had laid the poison which he had received in a well, which, however, he refused to name to him. Balavignus, as a physician, further deposed that a person infected by such poison coming in contact with another while in a state of perspiration, infection would be the almost inevitable result; as might also happen from the breath of an infected person. This fact he believed to be correct, and was confirmed in his opinion by the attestation of many experienced physicians. He also declared that none of his community could exculpate themselves from this accusation, as the plot was communicated to all; and that all were guilty of the above charges. Balavignus was conveyed over the lake from Chillon to Clarens, to point out the well into which he confessed having thrown the powder. On landing, he was conducted to the spot; and, having seen the well, acknowledged that to be the place, saying, "This is the well into which I put the poison." The well was examined in his presence, and the linen cloth in which the poison had been wrapped was found in the wastepipe by a notary-public named Heinrich Gerhard, in the presence of many persons, and was shown to the said Jew. He acknowledged this to be the linen which had contained the poison, which he described as being of two colors, red and black, but said that he had thrown it into the open well. The linen cloth was taken away and is preserved.

Balavignus, in conclusion, attests the truth of all and everything as above related. He believes this poison to contain a portion of the basilisk, because he had heard, and felt assured, that the above poison could not be prepared without it.

II. Banditono, a Jew of Neustadt, was, on the fifteenth day of September, subjected for a short time to the torture. After a long interval, he confessed having cast a quantity of poison, about the size of a large nut, given him by Musseus, a Jew, at Tour, near Vivey, into the well of Carutet, in order to poison those who drank of it.

The following day, Banditono, voluntarily and without torture, attested the truth of the aforesaid deposition; and also confessed that the Rabbi Jacob von Pasche, who came from Toledo and had settled at Chamberi, sent him, at Pillieux, by a Jewish servant, some poison about the size of a large nut, together with a letter, directing him to throw the powder into the wells on pain of excommunication. He had therefore thrown the poison, which was sewn up in a leathern bag, into the well of Cercliti de Roch; further, also, that he saw many other letters in the hands of the servant addressed to different Jews: that he had also seen the said servant deliver one, on the outside of the upper gate, to Samuletus, the Jew, at Neustadt. He stated, also, that the Jew, Massolet, had informed him that he had put poison into the well near the bridge at Vivey.

III. The said Manssion, Jew of Neustadt, was put upon the rack on the fifteenth day of the same month, but refused to admit the above charge, protesting his entire ignorance of the whole matter, but the day following, he, voluntarily and without any torture, confessed, in the presence of many persons, that he came from Mancheolo one day in last Whitsun-week, in company with a Jew named Provenzal, and, on reaching the well of Chabloz Crüz between Vyona and Mura, the latter said, "You must put some of the poison which I will give you into that well, or woe betide you!" He therefore took a portion of the powder about the bigness of a nut, and did as he was directed. He believed that the Jews in the neighborhood of Evian had convened a council among themselves relative to this

plot, before Whitsuntide. He further said that Balavignus had informed him of his having poisoned the well de la Conerayde below Mustruetz. He also affirmed his conviction of the culpability of the Jews in this affair, stating that they were fully acquainted with all the particulars, and guilty of the alleged crime.

On the third day of the October following, Manssiono was brought before the commissioners, and did not in the least vary from his former deposition, or deny having put the poison into the said wells.

The above-named Jews, prior to their execution, solemnly swore by their Law to the truth of their several depositions, and declared that all Jews whatsoever, from seven years old and upward, could not be exempted from the charge of guilt, as all of them were acquainted with the plot, and more or less participators in the crime.

[The seven other examinations scarcely differ from the above, except in the names of the accused, and afford but little variety. We will, therefore, only add a characteristic passage

at the conclusion of this document. The whole speaks for itself.]

There still remain numerous proofs and accusations against the above-mentioned Jews: also against Jews and Christians in different parts of the county of Savoy, who have already received the punishment due to their heinous crime; which, however, I have not at hand, and cannot therefore send you. I must add, that all the Jews of Neustadt were burnt according to the just sentence of the law. At Augst, I was present when three Christians were flayed on account of being accessory to the plot of poisoning. Very many Christians were arrested for this crime in various places in this country, especially at Evian, Gebenne, Krusilien, and Hochstett, who at last and in their dying moments were brought to confess and acknowledge that they had received the poison from the Jews. Of these Christians some have been quartered; others flayed and afterward hanged. Certain commissioners have been appointed by the magistrates to enforce judgment against all the Jews; and I believe that none will escape.

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Beacon Lights OF Science

THE DANCING MANIA OF THE MIDDLE AGES

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CHAPTER I.

THE DANCING MANIA IN GERMANY AND THE NETHERLANDS.

SECT. I.—ST. JOHN'S DANCE

THE effects of the *Black Death* had not yet subsided, and the graves of millions of its victims were scarcely closed, when a strange delusion arose in Germany, which took possession of the minds of men, and, in spite of the divinity of our nature, hurried away body and soul into the magic circle of hellish superstition. It was a convulsion which in the most extraordinary manner infuriated the human frame, and excited the astonishment of contemporaries for more than two centuries, since which time it has never reappeared. It was called the dance of St. John or of St. Vitus, on account of the Bacchantic leaps by which it was characterized, and which gave to those affected, while performing their wild dance, and screaming and foaming with fury, all the appearance of persons possessed. It did not remain confined to particular localities, but was propagated by the sight of the sufferers, like a demoniacal epidemic, over the whole of Germany and the

neighboring countries to the northwest, which were already prepared for its reception by the prevailing opinions of the times.

So early as the year 1374, assemblages of men and women were seen at Aix-la-Chapelle who had come out of Germany, and who, united by one common delusion, exhibited to the public both in the streets and in the churches the following strange spectacle.* They formed circles hand in hand, and appearing to have lost all control over their senses, continued dancing, regardless of the by-standers, for hours together in wild delirium, until at length they fell to the ground in a state of exhaustion. They then complained of extreme oppression, and groaned as if in the agonies of death, until they were swathed in cloths bound tightly round their waists, upon which they again recovered, and remained free from complaint until the next attack. This practice of swathing was resorted to on account of the tympany which followed these spasmodic ravings, but the by-standers frequently relieved patients in a less artificial manner, by

* *Odor. Raynald. Annal. Ecclesiastic. A.* 1374. Lucæ, 1752. fol. Tom. VII. p. 252.

thumping and trampling upon the parts affected. While dancing they neither saw nor heard, being insensible to external impressions through the senses, but were haunted by visions, their fancies conjuring up spirits whose names* they shrieked out; and some of them afterward asserted that they felt as if they had been immersed in a stream of blood, which obliged them to leap so high.† Others, during the paroxysm, saw the heavens open and the Saviour enthroned with the Virgin Mary, according as the religious notions of the age were strangely and variously reflected in their imaginations.‡

Where the disease was completely developed, the attack commenced with epileptic convulsions.§ Those affected fell to the ground senseless, panting and laboring for breath. They foamed at the mouth, and suddenly springing up began their dance amid strange contortions. Yet the malady doubtless made its appearance very variously, and was modified by temporary or local circumstances, whereof non-medical contemporaries but imperfectly noted the essential particulars, accustomed as they were to confound their observation of natural events with their notions of the world of spirits.

It was but a few months ere this

* *Joh. Wier's* ample Catalogue of Spirits gives no information on this point. *Pseudomonarchia dæmonum. Opera omnia, Amstelod. 1660. 4to. p. 659.*—*Raynald* mentions the word *Frisckes* as the name of a spirit; but this mistake is easily accounted for by his ignorance of the language; for, according to the Chronicle of Cologne, the St. John's dancers sang during their paroxysm: "Here Sent Johan, so so, *vrisk* ind vro, here Sent Johan." St. John so, so, brisk and cheerful, St. John. *Die Cronica van der hilliger Stat van Coellen, fol. 277. Coellen, 1499. fol.*

† *Cyr. Spangenberg, Adels-Spiegel—Mirror of Nobility, a detailed historical account of what nobility is, etc. Schmalkalden, 1591. fol. Fol. 403. b.*

‡ *Petr. de Herentals, Appendix, No. I.*

§ *Jo. Trithem. Chronic. Sponheimense. A. 1374. Opera historic. Francof. 1601. fol. p. 332.* Also: *Abrah. Bzovii Annal. Ecclesiastic. Tom. XIV. Colon. Agripp. 1625. fol. Ann. 1374. (Maniaca passio. S. Johannis chorea.)*

demoniacal disease had spread from Aix-la-Chapelle, where it appeared in July, over the neighboring Netherlands.* In Liege, Utrecht, Tongres, and many other towns of Belgium, the dancers appeared with garlands in their hair, and their waists girt with cloths, that they might, as soon as the paroxysm was over, receive immediate relief on the attack of the tympany. This bandage was, by the insertion of a stick, easily twisted tight: many, however, obtained more relief from kicks and blows, which they found numbers of persons ready to administer; for, wherever the dancers appeared, the people assembled in crowds to gratify their curiosity with the frightful spectacle. At length the increasing number of the affected excited no less anxiety than the attention that was paid to them. In towns and villages they took possession of the religious houses, processions were everywhere instituted on their account and masses were said and hymns were sung, while the disease itself, of the demoniacal origin of which no one entertained the least doubt, excited everywhere astonishment and horror. In Liege the priests had recourse to exorcisms, and endeavored, by every means in their power, to allay an evil which threatened so much danger to themselves; for the possessed assembling in multitudes, frequently poured forth imprecations against them, and menaced their destruction. They intimidated the people also to such a degree that there was an express ordinance issued that no one should make any but square-toed shoes, because these fanatics had manifested a morbid dislike to the pointed shoes which had

* *Jo. Pistorii Rerum Familiarumque Belgarum Chronicon magnum. Francof. 1654. fol. p. 319.* Here the persons affected are called *dansatores, chorisantes*. See the whole passage in the Appendix, No. II. Compare *Incerti auctoris vetus chronicon Belgicum, Matthæi veteris ævi Analecta. Hag. com. 1738. 4to. Tom. I. p. 51.* "Anno MCCCLXXIV, the *dansers* appeared. *Gens impacata cadit, dudum cruciata salvat.*" This should be *salivat*; a quotation from a Latin poem not now extant.

come into fashion immediately after the *Great Mortality*, in 1350.* They were still more irritated at the sight of red colors, the influence of which on the disordered nerves might lead us to imagine an extraordinary accordance between this spasmodic malady and the condition of infuriated animals; but in the St. John's dancers this excitement was probably connected with apparitions consequent upon their convulsions. There were likewise some of them who were unable to endure the sight of persons weeping.† The clergy seemed to become daily more and more confirmed in their belief that those who were affected were a kind of sectarians, and on this account they hastened their exorcisms as much as possible, in order that the evil might not spread among the higher classes, for hitherto scarcely any but the poor had been attacked, and the few people of respectability among the laity and clergy who were to be found among them, were persons whose natural frivolity was unable to withstand the excitement of novelty, even though it proceeded from a demoniacal influence. Some of the affected had indeed themselves declared, when under the influence of priestly forms of exorcism, that if the demons had been allowed only a few weeks more time, they would have entered the bodies of the nobility and princes, and through these have destroyed the

clergy. Assertions of this sort, which those possessed uttered while in a state which may be compared with that of magnetic sleep, obtained general belief, and passed from mouth to mouth with wonderful additions. The priesthood were, on this account, so much the more zealous in their endeavors to anticipate every dangerous excitement of the people, as if the existing order of things could have been seriously threatened by such incoherent ravings. Their exertions were effectual, for exorcism was a powerful remedy in the fourteenth century; or it might perhaps be that this wild infatuation terminated in consequence of the exhaustion which naturally ensued from it; at all events, in the course of ten or eleven months the St. John's dancers were no longer to be found in any of the cities of Belgium. The evil, however, was too deeply rooted to give way altogether to such feeble attacks.*

A few months after this dancing malady had made its appearance at Aix-la-Chapelle, it broke out at Cologne, where the number of those possessed amounted to more than five hundred,‡ and about the same time at Metz, the streets of which place are said to have been filled with eleven hundred dancers.‡ Peasants left their plows, mechanics their workshops, house-wives their domestic duties, to join the wild revels, and this rich commercial city became the scene of the most ruinous disorder. Secret desires were excited, and but too often found opportunities for wild enjoyment; and numerous beggars, stimulated by vice and misery, availed themselves of this new complaint to gain a temporary livelihood. Girls and boys quitted their parents, and servants their masters, to amuse

* The Limburg Chronicle, published by C. D. Vogel, Marburg, 1828. 8vo. p. 27. This singular phenomenon cannot but remind us of the "Demon of Fashion," of the middle ages. Extravagant as the love of dress was after the middle of the fourteenth century, the opposition of the enemies of fashion was equally great, and they let slip no opportunity of crying down every change or innovation as the work of the devil. Hence it is extremely probable that the fanatic penitential sermons of zealous priests excited this singular aversion of the St. Vitus dancers. In later times, also, signs and wonders took place, on account of things equally insignificant, and the fury of the possessed was directed against the fashions. Compare *Möhsen's History of the Sciences in the Mark of Brandenburg*, p. 498. f.

† *Petr. de Herentals*. Appendix, No. I.

* Respecting the exorcisms used, see E. G. Förstemann, the Christian Societies of Flagellants. Halle, 1828. 8vo. p. 232.

‡ Limburg Chronicle, p. 71. Cologne Chronicle, loc. cit. See Appendix, Nos. III. and IV.

‡ Dans la ville y eut des dansans, tant grands que petits, onze cents. *Journal de Paris*, 1785.

themselves at the dances of those possessed, and greedily imbibed the poison of mental infection. Above a hundred unmarried women were seen raving about in consecrated and unconsecrated places, and the consequences were soon perceived.* Gangs of idle vagabonds, who understood how to imitate to the life the gestures and convulsions of those really affected, roved from place to place seeking maintenance and adventures, and thus, wherever they went, spreading this disgusting spasmodic disease like a plague; for in maladies of this kind the susceptible are infected as easily by the appearance as by the reality. At last it was found necessary to drive away these mischievous guests, who were equally inaccessible to the exorcisms of the priests and the remedies of the physicians. It was not, however, until after four months that the Rhenish cities were able to suppress these impostures, which had so alarmingly increased the original evil. In the mean time, when once called into existence, the plague crept on, and found abundant food in the tone of thought which prevailed in the fourteenth and fifteenth centuries, and even, though in a minor degree, throughout the sixteenth and seventeenth, causing a permanent disorder of the mind, and exhibiting, in those cities to whose inhabitants it was a novelty, scenes as strange as they were detestable.

SECT. 2.—ST. VITUS'S DANCE.†

Strasburg was visited by the "Dancing Plague" in the year 1418, and the same infatuation existed among the people there, as in the towns of Bel-

* *Schenk. v. Grafenburg.* loc. cit.

† "Chorus Sancti Viti, or St. Vitus' Dance; the lascivious dance, Paracelsus calls it, because they that are taken with it, can do nothing but dance till they be dead, or cured. It is so called for that the parties so troubled were wont to go to St. Vitus for help; and, after they had danced there awhile, they were certainly freed. 'Tis strange to hear how long they will dance, and in what manner, over stools, forms,

gium and the Lower Rhine.* Many who were seized at the sight of those affected, excited attention at first by their confused and absurd behavior, and then by their constantly following the swarms of dancers. These were seen day and night passing through the streets, accompanied by musicians playing on bagpipes, and by innumerable spectators attracted by curiosity, to which were added anxious parents and relations, who came to look after those among the misguided multitude who belonged to their respective families. Imposture and profligacy played their part in this city also, but the morbid delusion itself seems to have predominated. On this account religion could only bring provisional aid, and therefore the town-council

tables; even great-bellied women sometimes (and yet never hurt their children) will dance so long that they can stir neither hand nor foot, but seem to be quite dead. One in red clothes they cannot abide. Musick above all things they love; and therefore magistrates in Germany will hire musicians to play to them, and some lusty, sturdy companions to dance with them. This disease hath been very common in Germany, as appears by those relations of Schenkius, and Paracelsus in his book of madness, who brags how many several persons he hath cured of it. Felix Platerus (*de Mentis Alienat.* cap. 3) reports of a woman in Basle whom he saw, that danced a whole month together. The Arabians call it a kind of *palsie*. Bodine, in his fifth book, *de Repub.* cap. 1, speaks of this infirmity; Monavius, in his last epistle to Scoltizius, and in another to Dudithus, where you may read more of it.—*Burton's Anatomy of Melancholy*, Vol. I. p. 15.—*Transl. note.*

* *J. of Königshoven*, the oldest German Chronicle in existence. The contents are general, but devoted more exclusively to Alsace and Strasburg, published by *Schilttern*, Strasburg, 1698. 4to. *Observat.* 21, of St. Vitus's Dance, p. 1085. f.

"*Viel hundert fingen zu Strassburg an Zutanzen und springen Frau und Mann, Am offenen Markt, Gassen und Strassen Tag und Nacht ihrer viel nicht assen. Bis ihn das Wüthen wieder gelag. St. Vits Tanz ward genannt die Plag.*"

"Many hundreds of men and women began to dance and jump in the public market-place, the lanes, and the streets of Strasburg. Many of them ate nothing for days and nights, until their mania again subsided. The plague was called St. Vitus's Dance."

benevolently took an interest in the afflicted. They divided them into separate parties, to each of which they appointed responsible superintendents to protect them from harm, and perhaps also to restrain their turbulence. They were thus conducted on foot and in carriages to the chapels of St. Vitus, near Zabern and Rotestein, where priests were in attendance to work upon their misguided minds by masses and other religious ceremonies. After divine worship was completed, they were led in solemn procession to the altar, where they made some small offering of alms, and where it is probable that many were, through the influence of devotion and the sanctity of the place, cured of this lamentable aberration. It is worthy of observation, at all events, that the Dancing Mania did not recommence at the altars of the saint, and that from him alone assistance was implored, and through his miraculous interposition a cure was expected, which was beyond the reach of human skill. The personal history of St. Vitus is by no means unimportant in this matter. He was a Sicilian youth, who, together with Modestus and Crescentia, suffered martyrdom at the time of the persecution of the Christians, under Diocletian, in the year 303.* The legends respecting him

* *Cæs. Baron.* *Annales ecclesiastic.* Tom. II. p. 819. Colon. Agripp. 1609. fol. See the more ample *Acta Sanctorum Junii* (The 15th of June is St. Vitus's day), Tom. II. p. 1013. Antwerp, 1698, fol. From which we shall merely add that Mazara, in Sicily, is supposed to have been the birth-place of our Saint, and that his father's name was *Hylas*; that he went from thence with *Crescentia* (probably his nurse) and *Modestus* to Lucania, with both of whom he suffered martyrdom under *Diocletian*. They are all said to have been buried at Florence, and it was not long before the miraculous powers of St. Vitus, which had already manifested themselves in his lifetime, were acknowledged throughout Italy. The most celebrated of his chapels were situated on the Promontory of Sicily (called by his name), in Rome and in Polignano, whither many pilgrimages were made by the sick. Persons who had been bitten by mad dogs believed that they would find an infallible cure at his altars, though the power of the Saint in

are obscure, and he would certainly have been passed over without notice among the innumerable apocryphal martyrs of the first centuries, had not the transfer of his body to St. Denys, and thence, in the year 836, to Corvey, raised him to a higher rank. From this time forth, it may be supposed that many miracles were manifested at his new sepulchre, which were of essential service in confirming the Roman faith among the Germans, and St. Vitus was soon ranked among the fourteen saintly helpers (*Nothhelfer* or *Apotheker*).* His altars were

curing wounds of this kind was afterward disputed by the followers of St. Hubertus, the Saint of the Chase. In 672, his body was with much pomp moved to Apulia, but soon after the priests of many churches and chapels in Italy, gave out that they were in possession of portions of the saint's body which worked miracles. In the eighth century the veneration of this youthful martyr extended itself to France, and the honor of possessing his body was conferred on the church of St. Denys. By command of the Pope it was solemnly delivered on the 19th of March, 836, by the Abbot *Hilduwinus*, of St. Denys, to the Abbot *Warinus*, of Corvey (founded in 822). On its way thither, which occupied three months (to the 13th of June), many miracles were performed, and the subsequent Abbots of Corvey were able for centuries to maintain the popular belief in the miraculous healing power of their relics, which had indiscriminate influence on all diseases, more especially on those of a demoniacal kind. See *Monachi anonymi Historia translationis S. Viti*. In *G. H. Pertz*, *Monumenta Germaniæ Historica*, Tom. II. Hannov. 1828. fol. p. 576. As a proof of the great veneration for St. Vitus in the fourteenth century, we may further mention that Charles IV. dedicated to him the Cathedral of Prague, of which he had laid the foundation, and caused him to be proclaimed patron Saint of Bohemia, and a nominal body of the holy martyr was, for this purpose, brought from Parma. *Act. Sanctor. loc. cit.*

* Probably a corruption of *Apotropæi*. The expression is constantly met with; for example, in *Agricola*, *Proverbs*, No. 497. These are the *θεοὶ ἀπετροπῆς*, the *dii averrunci* of the ancients. The fourteen saints, to whose churches (between Bamberg and Coburg) thousands still annually make pilgrimages, are the following: 1. Georgius. 2. Blasius. 3. Erasmus. 4. Vitus. 5. Pantaleon. 6. Christophorus. 7. Dionysius. 8. Cyriacus. 9. Achatius. 10. Eustachius. 11. Egidius. 12. Margaretha. 13. Catharina. 14. Barbara.

multiplied, and the people had recourse to them in all kinds of distresses, and revered him as a powerful intercessor. As the worship of these saints was however at that time stripped of all historical connections, which were purposely obliterated by the priesthood, a legend was invented at the beginning of the fifteenth century, or perhaps even so early as the fourteenth, that St. Vitus had, just before he bent his neck to the sword, prayed to God that he might protect from the Dancing Mania all those who should solemnize the day of his commemoration, and fast upon its eve, and that thereupon a voice from heaven was heard, saying, "Vitus, thy prayer is accepted."* Thus St. Vitus became the patron saint of those afflicted with the dancing plague, as St. Martin of Tours was at one time the succor of persons in small-pox; St. Antonius of those suffering under the "hellish fire;" and as St. Margaret was the Juno Lucina of puerperal women.

SECT. 3.—CAUSES.

The connection which John the Baptist had with the dancing mania of the fourteenth century, was of a totally different character. He was originally far from being a protecting saint to those who were attacked, or one who would be likely to give them relief from a malady considered as the work of the devil. On the contrary, the manner in which he was worshiped afforded an important and very evident cause for its development. From the remotest period, perhaps even so far back as the fourth century, St. John's day was solemnized with all sorts of strange and rude customs, of which the originally mystical meaning was variously disfigured among different nations by superadded relics of heathenism.† Thus the

* *J. Agricola*. Sybenhundert und fünfzig Teutscher Sprichwörter. No. 497. Seven hundred and fifty German Proverbs. Hage-mau, 1537. 8vo. fol. 248.

† *St. Augustine* had already warned the people against committing excesses and singing

Germans transferred to the festival of St. John's day an ancient heathen usage, the kindling of the "Nodfyr," which was forbidden them by St. Boniface, and the belief subsists even to the present day that people and animals that have leaped through these flames, or their smoke, are protected for a whole year from fevers and other diseases, as if by a kind of baptism by fire.* Bacchanalian dances, which have originated in similar causes among all the rude nations of the earth, and the wild extravagancies of a heated imagination, were the constant accompaniments of this half-heathen, half-christian festival. At the period of which we are treating, however, the Germans were not the only people who gave way to the ebullitions of fanaticism in keeping the festival of St. John the Baptist. Similar customs were also to be found among the nations of Southern Europe and of Asia,† and it is more

profane songs at the festival of St. John: "Nec permittamus solemnitate[m] sanctam cantica luxuriosa profero[rum] polluere."—*St. Augusti* Denkwürdigkeiten aus der Christlichen Archäologie. Vol. III. p. 166. Leipzig. 1820. 8vo. Memorabilia of Christian Archæology.

* *Wirthwein*. Series chronologic. Epistolarum S. Bonifacii ab ann. 716—755, LVIII. Concil. Liptinens. p. 131. XV. De igne fricato de ligno, id est, Nodfyr. See *Joh. Reiskii*. Untersuchung des bei den Alten Teutschen gebräuchlichen heidnischen Nodfyr's, imgleichen des Oster-und Johannis-Feuers. Enquiry respecting the heathen Nodfyr's customary among the ancient Germans, and also the Easter and St. John's fires. Frankfort, 1696, 8vo.

† The Bishop *Theodoret* of Cyrus in Syria, states, that, at the festival of St. John, large fires were annually kindled in several towns, through which men, women, and children jumped; and that young children were carried through by their mothers. He considered this custom as an ancient Asiatic ceremony of purification, similar to that recorded of Ahaz, in 2 Kings xvi. 3. (Quæstiones in IV. Libr. Regum. Interrogat. 47, p. 352. *Beati Theodoretii*, Episcop. Cyri Opera omnia. Ed. *Jac Sirmondi*, Lut. Paris. 1642. fol. T. I.) *Zonaras*, *Balsamon*, and *Photius* speak of the St. John's fires in Constantino-ple, and the first looks upon it as the remains of an old Grecian custom. See *Reiske* loc. cit. p. 81. That such different nations should have had the same idea of fixing the

than probable that the Greeks transferred to the festival of John the Baptist, who is also held in high esteem among the Mohammedans, a part of their Bacchanalian mysteries, an absurdity of a kind which is but too frequently met with in human affairs. How far a remembrance of the history of St. John's death may have had an influence on this occasion, we would leave learned theologians to decide. It is only of importance here to add, that in Abyssinia, a country entirely separated from Europe, where Christianity has maintained itself in its primeval simplicity against Mohammedanism, John is to this day worshiped, as protecting saint of those who are attacked with the dancing malady.* In these fragments of the dominion of mysticism and superstition, historical connection is not to be found.

When we observe, however, that the first dances in Aix-la-Chapelle appeared in July with St. John's name in their mouths, the conjecture is probable that the wild revels of St. John's day, A.D. 1374, gave rise to this mental plague, which thenceforth has visited so many thousands with incurable aberration of mind, and disgusting distortions of body.

This is rendered so much the more probable, because some months previously the districts in the neighborhood of the Rhine and the Maine had met with great disasters. So early as February, both these rivers had overflowed their banks to a great extent; the walls of the town of Cologne, on the side next the Rhine, had fallen down, and a great many villages had been reduced to the utmost distress.†

purification by fire on St. John's day, is a remarkable coincidence, which perhaps can be accounted for only by its analogy to baptism.

* The Life and Adventures of *Nathaniel Pearce*, written by himself, during a residence in Abyssinia from the year 1810 to 1819. Edited by *J. J. Halls*. 2 Vols. 8vo. London, 1831. chap. ix. p. 290.

† *Joann. Tritheim*. Annal. Hirsaugiens. Oper. Tom. II. Hirsaug. 1690. fol. p. 263. A. 1374. See the before-mentioned Chron-

To this was added the miserable condition of Western and Southern Germany. Neither law nor edict could suppress the incessant feuds of the Barons, and in Franconia especially, the ancient times of club law appeared to be revived. Security of property there was none; arbitrary will everywhere prevailed; corruption of morals and rude power rarely met with even a feeble opposition; whence it arose that the cruel, but lucrative, persecutions of the Jews were in many places still practiced, through the whole of this century, with their wonted ferocity. Thus, throughout the western parts of Germany, and especially in the districts bordering on the Rhine, there was a wretched and oppressed populace; and if we take into consideration, that among their numerous bands many wandered about, whose consciences were tormented with the recollection of the crimes which they had committed during the prevalence of the black plague, we shall comprehend how their despair sought relief in the intoxication of an artificial delirium.* There is hence good ground for supposing that the frantic celebration of the festival of St. John, A.D. 1374, only served to bring to a crisis a malady which had been long impending; and if we would further inquire how a hitherto harmless usage, which like many

icle of Cologne, fol. 276. b., wherein it is said that the people passed in boats and rafts over the city walls.

* What took place at the St. John's fires in the middle ages (about 1280) we learn by a communication from the Bishop *Guil. Durantes* of Aquitania. (*Rationale divinatorum officiorum*. L. VII. c. 26. In *Reiske*, loc. cit. p. 77.) Bones, horns, and other rubbish, were heaped together to be consumed in smoke, while persons of all ages danced round the flames as if they had been possessed, in the same way as at the Palilia, an ancient Roman lustration by fire, whereat those who took part in them sprang through a fire made of straw. (*Ovid. Met. XIV. 774, Fast. IV. 721*.) Others seized burning flambeaux, and made a circuit of the fields, in the supposition that they thereby screened them from danger, while others, again, turned a cart-wheel, to represent the retrograde movement of the sun.

others, had but served to keep up superstition, could degenerate into so serious a disease, we must take into account the unusual excitement of men's minds, and the consequences of wretchedness and want. The bowels, which in many were debilitated by hunger and bad food, were precisely the parts which in most cases were attacked with excruciating pain, and the tympanitic state of the intestines, points out to the intelligent physician an origin of the disorder which is well worth consideration.

SECT. 4.—MORE ANCIENT DANCING PLAGUES.

The dancing mania of the year 1374 was, in fact, no new disease, but a phenomenon well known in the middle ages, of which many wondrous stories were traditionally current among the people. In the year 1237, upward of a hundred children were said to have been suddenly seized with this disease at Erfurt, and to have proceeded dancing and jumping along the road to Arnstadt. When they arrived at that place they fell exhausted to the ground, and, according to an account of an old chronicle, many of them, after they were taken home by their parents, died, and the rest remained affected, to the end of their lives, with the permanent tremor.* Another occurrence was related to have taken place on the Mosel bridge at Utrecht, on the 17th day of June, A.D. 1278, when two hundred fanatics began to dance, and would not desist until a priest passed who was carrying the Host to a person that was sick, upon which, as if in punishment of their crime, the bridge gave way, and they were all drowned.† A similar event also occurred so early as the year 1027, near the convent church of Kolbig,

not far from Bernburg. According to an oft-repeated tradition, eighteen peasants, some of whose names are still preserved, are said to have disturbed divine service on Christmas eve, by dancing and brawling in the churchyard, whereupon the priest, Ruprecht, inflicted a curse upon them, that they should dance and scream for a whole year without ceasing. This curse is stated to have been completely fulfilled, so that the unfortunate sufferers at length sank knee deep into the earth, and remained the whole time without nourishment, until they were finally released by the intercession of two pious bishops. It is said, that upon this they fell into a deep sleep, which lasted three days, and that four of them died: the rest continuing to suffer all their lives from a trembling of their limbs.* It is not worth while to separate what may have been true, and what the addition of crafty priests, in this strangely distorted story. It is sufficient that it was believed, and related with astonishment and horror throughout the middle ages; so that when there was any exciting cause for this delirious raving, and wild rage for dancing, it failed not to produce its effects upon men whose thoughts were given up to a belief in wonders and apparitions.

This disposition of mind, altogether so peculiar to the middle ages, and which, happily for mankind, has yielded to an improved state of civilization and the diffusion of popular instruction, accounts for the origin and long duration of this extraordinary mental disorder. The good sense of the people recoiled with horror and aversion from this heavy plague, which, whenever malevolent persons wished to curse their bitterest enemies and adversaries, was long after used as a malediction.† The indigna-

* *J. Chr. Beckmann, Historia des Fürstenthums Anhalt. Zerbst. History of the Principality of Anhalt. Zerbst. 1710. fol. Part III. book 4. chap. 4. § 3. p. 467.*

† *Martini Minoritæ Flores temporum, in Jo. Georg. Eccard, Corpus historię medię ævi. Lips. 1723. fol. Tom. I. p. 1632.*

* *Beckmann loc. cit. § 1. f. p. 465*, where many other observations are made on this well-known circumstance. The priest named, is the same who is still known in the nursery tales of children as the *Knecht Ruprecht*.

† "Das dich Sanct Veitstanz ankomme." May you be seized with St. Vitus's Dance.

tion also that was felt by the people at large against the immorality of the age, was proved by their ascribing this frightful affliction to the inefficacy of baptism by unchaste priests, as if innocent children were doomed to atone, in after years, for this desecration of the sacrament administered by unholy hands.* We have already mentioned what perils the priests in the Netherlands incurred from this belief. They now, indeed, endeavored to hasten their reconciliation with the irritated, and at that time very degenerate people,† by exorcisms, which, with some, procured them greater respect than ever, because they thus visibly restored thousands of those who were affected. In general, however, there prevailed a want of confidence in their efficacy, and then the sacred rites had as little power in arresting the progress of this deeply-rooted malady, as the prayers and holy services subsequently had at the altars of the greatly revered martyr St. Vitus. We may therefore ascribe it to accident merely, and to a certain aversion to this demoniacal disease, which seemed to lie beyond the reach of human skill, that we meet with but few and imperfect notices of the St. Vitus's dance in the second half of the fifteenth century. The highly-colored descriptions of the sixteenth century contradict the notion that this mental plague had in any degree diminished in its severity, and not a single fact is to be found which supports the opinion, that any one of the essential symptoms of the

disease, not even excepting the tympany, had disappeared, or that the disorder itself had become milder in its attacks. The physicians never, as it seems, throughout the whole of the fifteenth century, undertook the treatment of the dancing mania, which, according to the prevailing notions, appertained exclusively to the servants of the church. Against demoniacal disorders they had no remedies, and though some at first did promulgate the opinion, that the malady had its origin in natural circumstances, such as a hot temperament, and other causes named in the phraseology of the schools,* yet these opinions were the less examined, as it did not appear worth while to divide with a jealous priesthood the care of a host of fanatical vagabonds and beggars.

SECT. 5.—PHYSICIANS.

It was not until the beginning of the sixteenth century that the St. Vitus's dance was made the subject of medical research, and stripped of its unhallowed character as a work of demons. This was effected by Paracelsus, that mighty, but as yet scarcely comprehended, reformer of medicine, whose aim it was to withdraw diseases from the pale of miraculous interpositions and saintly influences, and explain their causes upon principles deduced from his knowledge of the human frame. "We will not however admit that the saints have power to inflict diseases, and that these ought to be named after them, although many there are, who in their theology lay great stress on this supposition, ascribing them rather to God than to nature, which is but idle talk. We dislike such nonsensical gossip as is not supported by symptoms, but only by faith, a thing which is not human, whereon the gods themselves set no value."

Such were the words which Paracelsus addressed to his contemporaries, who were as yet incapable of appre-

Joh. Agricola, Sybenhundert und fünfzig Teutscher Sprichwörter. Hagenau, 1537, 8. No. 497. p. 263.

* *Spangenberg* (*Adels-Spiegel*. *Mirror of Nobility*, loc. cit.), in his own forcible manner, thus expresses himself on this subject: "It was afterward pointed out by some, that these people could not have been properly baptized, or at all events, that their baptism was ineffectual, because they had received it from priests who shamelessly lived in open cohabitation with unchaste harlots. Upon this the lower classes rose in rebellion, and would have killed all the priests." Compare Appendix, No. I.

† *Bzovii Annal. ecclesiastic.* loc. cit. 1468.

* See Appendix, Nos. III. and IV.

ciating doctrines of this sort ; for the belief in enchantment still remained everywhere unshaken, and faith in the world of spirits still held men's minds in so close a bondage that thousands were, according to their own conviction, given up as a prey to the devil ; while at the command of religion as well as of law, countless piles were lighted, by the flames of which human society was to be purified.

Paracelsus divides the St. Vitus's dance into three kinds. First, that which arises from imagination (*Vitista*, *Chorea imaginativa*, *æstivativa*), by which the original dancing plague is to be understood. Secondly, that which arises from sensual desires, depending on the will (*Chorea lasciva*). Thirdly, that which arises from corporeal causes (*Chorea naturalis*, *coacta*), which, according to a strange notion of his own, he explained by maintaining, that in certain vessels which are susceptible of an internal pruriency, and thence produce laughter, the blood is set in commotion, in consequence of an alteration in the vital spirits, whereby involuntary fits of intoxicating joy, and a propensity to dance, are occasioned.* To this notion he was, no doubt, led from having observed a milder form of St. Vitus's dance, not uncommon in his time, which was accompanied by involuntary laughter ; and which bore a resemblance to the hysterical laughter of the moderns, except that it was characterized by more pleasurable sensations, and by an extravagant propensity to dance. There was no howling, screaming, and jumping, as in the severer form ; neither was the disposition to dance by any means insuperable. Patients thus affected, although they had not a complete control over their understandings, yet were sufficiently self-

* *Theophrasti Bombast von Hohenheim*, 7 Buch in der Artzney. Von den Krankheiten, die der Vernunft berauben. 7th Book on Medicine. Of the diseases which produce insanity. Tract I. chap. 3, p. 491. Tract II. chap. 3, p. 501. Opera. Strassburg, 1616. fol. Tom. I.

possessed, during the attack, to obey the directions which they received. There were even some among them who did not dance at all, but only felt an involuntary impulse to allay the internal sense of disquietude, which is the usual forerunner of an attack of this kind, by laughter, and quick walking carried to the extent of producing fatigue.* This disorder, so different from the original type, evidently approximates to the modern chorea ; or rather is in perfect accordance with it, even to the less essential symptom of laughter. A mitigation in the form of the dancing mania had thus clearly taken place at the commencement of the sixteenth century.

On the communication of the St. Vitus's dance by sympathy, Paracelsus in his peculiar language, expresses himself with great spirit, and shows a profound knowledge of the nature of sensual impressions, which find their way to the heart,—the seat of joys and emotions,—which overpower the opposition of reason ; and while “ all other qualities and natures ” are subdued, incessantly impel the patient, in consequence of his original compliance, and his all-conquering imagination, to imitate what he has seen. On his treatment of the disease we cannot bestow any great praise, but must be content with the remark, that it was in conformity with the notions of the age in which he lived. For the first kind, which often originated in passionate excitement, he had a mental remedy, the efficacy of which is not to be despised, if we estimate its value in connection with the prevalent opinions of those times. The patient was to make an image of himself in wax or resin, and by an effort of thought to concentrate all his blasphemies and sins in it. “ Without the intervention of any other person, to set his whole mind and thoughts concerning these oaths in the image ; ” and when he had succeeded in this, he was to burn

* *Chorea prokursiva of the moderns. Bernt*, Monographia Choreæ Sti. Viti. Prag. 1810. p. 25.

the image, so that not a particle of it should remain.* In all this there was no mention made of St. Vitus, or any of the other mediatory saints, which is accounted for by the circumstance, that, at this time, an open rebellion against the Romish Church had begun, and the worship of saints was by many rejected as idolatrous.† For the second kind of St. Vitus's dance, arising from sensual irritation, with which women were far more frequently affected than men, Paracelsus recommended harsh treatment and strict fasting. He directed that the patients should be deprived of their liberty; placed in solitary confinement, and made to sit in an uncomfortable place, until their misery brought them to their senses and to a feeling of penitence. He then permitted them gradually to return to their accustomed habits. Severe corporal chastisement was not omitted; but, on the other hand, angry resistance on the part of the patient was to be sedulously avoided, on the ground that it might increase his malady, or even destroy him; moreover, where it

* This proceeding was, however, no invention of his, but an imitation of a usual mode of enchantment by means of wax figures (*peri cuniculas*). The witches made a wax image of the person who was to be bewitched; and in order to torment him, they stuck it full of pins, or melted it before the fire. The books on magic, of the middle ages, are full of such things; though the reader who may wish to obtain information on this subject, need not go so far back. Only eighty years since, the learned and celebrated *Storch*, of the school of *Stahl*, published a treatise on witchcraft, worthy of the fourteenth century. "Abhandlung von Kinderkrankheiten." Treatise on the Diseases of Children. Vol. IV. p. 228. Eisenach, 1751-8.

The ancients were in the habit of employing wax in incantations.

Thus *Simoetha* in *Theocritus* :

Ὡς τοῦτον τὸν καρὸν ἐγὼ σὺν δαίμονι τάχα,
Ὡς τάκοιβ' ἕτ' ἔρωτος ὁ Μίνδιος αὐτίκα Δέλφις.

See *Potter's Antiquities*, Vol. II. p. 251.

and *Horace*—

"*Lanea et effigies erat, altera cerea.*"

Lib. i. Sat. 8. l. 30.

Transl. note.

† See *Agricola*, *loc. cit.* p. 269. No. 498.

seemed proper, Paracelsus allayed the excitement of the nerves by immersion in cold water. On the treatment of the third kind we shall not here enlarge. It was to be effected by all sorts of wonderful remedies, composed of the quintessences; and it would require, to render it intelligible, a more extended exposition of peculiar principles than suits our present purpose.

SECT. 6.—DECLINE AND TERMINATION OF THE DANCING PLAGUE.

About this time the St. Vitus's dance began to decline, so that milder forms of it appeared more frequently, while the severer cases became more rare; and even in these, some of the important symptoms gradually disappeared. Paracelsus makes no mention of the tympanites as taking place after the attacks, although it may occasionally have occurred: and *Schenck von Graffenberg*, a celebrated physician of the latter half of the sixteenth century,* speaks of this disease as having been frequent only in the time of his forefathers; his descriptions, however, are applicable to the whole of that century, and to the close of the fifteenth.† The St. Vitus's dance attacked people of all stations, especially those who led a sedentary life, such as shoemakers and tailors; but even the most robust peasants abandoned their labors in the fields, as if they were possessed by evil spirits; and thus those affected were seen assembling indiscriminately, from time to time, at certain appointed places, and, unless prevented by the lookers-on continuing to dance without intermission, until their very last breath was expended. Their fury and extravagance of demeanor so completely deprived them of their senses, that

* *Johann Schenck von Graffenberg*, born 1530, took his degree at Tübingen, in 1554. He passed the greater part of his life as physician to the corporation of Freiburg in the Breisgau, and died in 1598.

† *J. Schenkii a Graffenberg* Observationum medicarum, rariarum, etc. Libri VII. Lugdun. 1643. fol. L. I. Obs. VIII. p. 136.

many of them dashed their brains out against the walls and corners of buildings, or rushed headlong into rapid rivers, where they found a watery grave. Roaring and foaming as they were, the by-standers could only succeed in restraining them by placing benches and chairs in their way, so that, by the high leaps they were thus tempted to take, their strength might be exhausted. As soon as this was the case, they fell as it were lifeless to the ground, and, by very slow degrees, again recovered their strength. Many there were who, even with all this exertion, had not expended the violence of the tempest which raged within them, but awoke with newly revived powers, and again and again mixed with the crowd of dancers, until at length the violent excitement of their disordered nerves was allayed by the great involuntary exertion of their limbs; and the mental disorder was calmed by the extreme exhaustion of the body. Thus the attacks themselves were in these cases, as in their nature they are in all nervous complaints, necessary crises of an inward morbid condition, which was transferred from the sensorium to the nerves of motion, and, at an earlier period, to the abdominal plexus, where a deep-seated derangement of the system was perceptible from the secretion of flatus in the intestines.

The cure effected by these stormy attacks was in many cases so perfect, that some patients returned to the factory or the plow as if nothing had happened. Others, on the contrary, paid the penalty of their folly by so total a loss of power, that they could not regain their former health, even by the employment of the most strengthening remedies. Medical men were astonished to observe that women in an advanced state of pregnancy were capable of going through an attack of the disease, without the slightest injury to their offspring, which they protected merely by a bandage passed round the waist. Cases of this kind were not unfre-

quent so late as Schenck's time. That patients should be violently affected by music, and their paroxysms brought on and increased by it, is natural with such nervous disorders; where deeper impressions are made through the ear, which is the most intellectual of all the organs, than through any one of the other senses. On this account the magistrates hired musicians for the purpose of carrying the St. Vitus's dancers so much the quicker through the attacks, and directed, that athletic men should be sent among them in order to complete the exhaustion, which had been often observed to produce a good effect.* At the same time there was a prohibition against wearing red garments, because at the sight of this color, those affected became so furious, that they flew at the persons who wore it, and were so bent upon doing them an injury that they could with difficulty be restrained. They frequently tore their own clothes while in the paroxysm, and were guilty of other improprieties, so that the more opulent employed confidential attendants to accompany them, and to take care that they did no harm either to themselves or others. This extraordinary disease was, however, so greatly mitigated in Schenck's time, that the St. Vitus's dancers had long since ceased to stroll from town to town; and that physician, like Paracelsus, makes no mention of the tympanitic inflation of the bowels. Moreover, most

* It is related by *Felix Plater* (born 1536, died 1614) that he remembered in his youth the authorities of Basle having commissioned several powerful men to dance with a girl who had the dancing mania, till she recovered from her disorder. They successively relieved each other; and this singular mode of cure lasted above four weeks, when the patient fell down exhausted, and being quite unable to stand, was carried to an hospital, where she recovered. She had remained in her clothes all the time, and entirely regardless of the pain of her lacerated feet, she had merely sat down occasionally to take some nourishment, or to slumber, during which the hopping movement of her body continued. *Felic. Plateri Praxeos medicæ opus*. L. I. ch. 3. p. 88. Tom. I. Basil. 1656. 4to. Ejusd. Observation, Basil, 1641. 8. p. 92.

of those affected were only annually visited by attacks; and the occasion of them was so manifestly referable to the prevailing notions of that period, that if the unqualified belief in the supernatural agency of saints could have been abolished, they would not have had any return of the complaint. Throughout the whole of June, prior to the festival of St. John, patients felt a disquietude and restlessness which they were unable to overcome. They were dejected, timid, and anxious; wandered about in an unsettled state, being tormented with twitching pains, which seized them suddenly in different parts, and eagerly expected the eve of St. John's day, in the confident hope, that by dancing at the altars of this saint, or of St. Vitus (for in the Breisgau aid was equally sought from both), they would be freed from all their sufferings. This hope was not disappointed; and they remained, for the rest of the year, exempt from any further attack, after having thus, by dancing and raving for three hours, satisfied an irresistible demand of nature. There were at that period two chapels in the Breisgau, visited by the St. Vitus's dancers; namely, the Chapel of St. Vitus at Biessen, near Breisach, and that of St. John, near Wasenwieler; and it is probable that in the south-west of Germany the disease was still in existence in the seventeenth century.

However, it grew every year more rare, so that, at the beginning of the seventeenth century, it was observed only occasionally in its ancient form. Thus in the spring of the year 1623, G. Horst saw some women who annually performed a pilgrimage to St. Vitus's chapel at Drefelhausen, near Weissenstein, in the territory of Ulm, that they might wait for their dancing fit there, in the same manner as those in the Breisgau did, according to Schenck's account. They were not satisfied, however, with a dance of three hours' duration, but continued day and night in a state of mental aberration, like persons in an ecstasy, until they fell exhausted to the ground;

and when they came to themselves again, they felt relieved from a distressing uneasiness and painful sensation of weight in their bodies, of which they had complained for several weeks prior to St. Vitus's day.*

After this commotion they remained well for the whole year; and such was their faith in the protecting power of the saint, that one of them had visited this shrine at Drefelhausen more than twenty times, and another had already kept the Saint's day for the thirty-second time at this sacred station.

The dancing fit itself was excited here, as it probably was in other places, by music, from the effects of which the patients were thrown into a state of convulsion.† Many concurrent testimonies serve to show that music generally contributed much to the continuance of the St. Vitus's dance, originated and increased its paroxysms, and was sometimes the cause of their mitigation. So early as the fourteenth century, the swarms of St. John's dancers were accompanied by minstrels playing upon noisy instruments, who roused their morbid feelings; and it may readily be supposed that, by the performance of lively melodies, and the stimulating effects which the shrill tones of fifes and trumpets would produce, a paroxysm, that was perhaps but slight in itself, might, in many cases, be increased to the most outrageous fury, such as in later times was purposely induced in order that the force of the disease might be exhausted by the violence of its attack. Moreover, by means of intoxicating music a kind of demoniacal festival for the rude multitude was established, which had the effect of spreading this unhappy malady wider and wider. Soft harmony was, however, employed to calm the excitement of those affected, and it is

* The 15th of June. Here therefore they did not wait till the Festival of St. John.

† *Gregor. Horstii Observationum medicinarum singularium Libri IV. priores. His accessit Epistolarum et Consultationum medicar. Lib. I. Ulm. 1628. 4to. Epistol. p. 374.*

mentioned as a character of the tunes played with this view to the St. Vitus's dancers, that they contained transitions from a quick to a slow measure, and passed gradually from a high to a low key.* It is to be regretted that no trace of this music has reached our times, which is owing partly to the disastrous events of the seventeenth century, and partly to the circumstance that the disorder was looked upon as entirely national, and only incidentally considered worthy of notice by foreign men of learning. If the St. Vitus's dance was already on the decline at the commencement of the seventeenth century, the subsequent events were altogether adverse to its continuance. Wars carried on with animosity and with various success for thirty years, shook the west of Europe; and although the unspeakable calamities which they brought upon Germany, both during their continuance and in their immediate consequences, were by no means favorable to the advance of knowledge, yet with the vehemence of a purifying fire, they gradually effected the intellectual regeneration of the Germans; superstition, in her ancient form, never again appeared, and the belief in the dominion of spirits, which prevailed in the middle ages, lost forever its once formidable power.

CHAPTER II.

DANCING MANIA IN ITALY.

SECT. I.—TARANTISM.

IT was of the utmost advantage to the St. Vitus's dancers that they made choice of a favorite patron saint; for not to mention that people were inclined to compare them to the possessed with evil spirits, described in the Bible, and thence

* *Jo. Bodin.* Method. historic. Amstelod. 1650. 12mo, Ch. V. p. 99.—*Idem*, de Republica. Francofurt. 1591, 8vo. Lib. V. Ch. l. p. 789.

to consider them as innocent victims to the power of Satan, the name of their great intercessor recommended them to general commiseration, and a magic boundary was thus set to every harsh feeling which might otherwise have proved hostile to their safety. Other fanatics were not so fortunate, being often treated with the most relentless cruelty whenever the notions of the middle ages either excused or commanded it as a religious duty.* Thus, passing over

* A very remarkable case, illustrative in part of this observation, where, however, not the person who was supposed to be the subject of the demoniacal malady, but its alleged authors, were punished, is thus reported by Dr. Watt of Glasgow:—"It occurred at Bargarran, in Renfrewshire, in 1696. The patient's name was Christian Shaw, a girl of eleven years of age. She is described as having had violent fits of leaping, dancing, running, crying, fainting, etc., but the whole narrative is mixed up with so much credulity and superstition, that it is impossible to separate truth from fiction. These strange fits continued from August, 1696, till the end of March in the year following, when the patient recovered." An account of the whole was published at Edinburgh, in 1698, entitled "A true Narrative of the Sufferings of a Young Girl, who was strangely molested by evil spirits, and their instruments, in the West, collected from authentic testimonies."

The whole being ascribed to witchcraft, the clergy were most active on the occasion. Besides occasional days of humiliation, two solemn fasts were observed throughout the whole bounds of the Presbytery, and a number of clergymen and elders were appointed in rotation, to be constantly on the spot. So far the matter was well enough. But such was the superstition of the age, that a memorial was presented to his Majesty's most honorable Privy Council, and on the 19th of January, 1697, a warrant was issued, setting forth "that there were pregnant grounds of suspicion of witchcraft in Renfrewshire, especially from the afflicted and extraordinary condition of Christian Shaw, daughter of John Shaw, of Bargarran." A commission was therefore granted to Alexander Lord Blantyre, Sir John Maxwell, Sir John Shaw, and five others, together with the sheriff of the county, to inquire into the matter, and report. This commission is signed by eleven privy councillors, consisting of some of the first noblemen and gentlemen in the kingdom.

The report of the commissioners having fully confirmed the suspicions respecting the existence of witchcraft, another warrant was

the innumerable instances of the burning of witches, who were, after all, only laboring under a delusion, the Teutonic knights in Prussia not unfrequently condemned those maniacs to the stake who imagined themselves to be metamorphosed into wolves*—an extraordinary species of insanity which, having existed in Greece, before our era, spread, in process of time, over Europe, so that it was communicated not only to the Romaic, but also to the German and Sarmatian nations, and descended from the ancients, as a legacy of affliction to posterity. In modern times Lycanthropy, such was the name given to this infatuation, has vanished from the earth, but it is nevertheless well worthy the consideration of the observer of human aberrations, and a history of it by some writer who is equally well acquainted with the middle ages as with antiquity, is still a desideratum.† We leave it

issued on the 5th of April, 1697, to Lord Hallcraig, Sir John Houston, and four others, "to try the persons accused of witchcraft, and to sentence the guilty to be burned, or otherwise executed to death, as the commission should incline."

The commissioners, thus empowered, were not remiss in the discharge of their duty. After twenty hours were spent in the examination of witnesses, and counsel heard on both sides, the counsel for the prosecution "exhorted the jury to beware of condemning the innocent: but at the same time, should they acquit the prisoners in opposition to legal evidence, they would be accessory to all the blasphemies, apostacies, murders, tortures, and seductions, whereof these enemies of heaven and earth should hereafter be guilty." After the jury had spent six hours in deliberation, seven of the miserable wretches, three men and four women, were condemned to the flames, and the sentence faithfully executed at Paisley, on the 10th of June, 1697.—*Medico-Chirurg. Trans.* Vol. V. p. 20, et seq.—*Transl. note.*

* Compare *Olaus Magnus, de gentibus septentrionalibus*. Lib. XVIII. Ch. 45—47. p. 642, seq. Rom. 1555, fol.

† *Burton*, in his *Anatomy of Melancholy*, has the following observations, which, with the ample references by which they are accompanied, will furnish materials for such a history.

"*Lycanthropia*, which *Avicenna* calls *cucubuth*, others *lupinam insaniam*, or wolf-madness, when men run howling about

for the present, without further notice, and turn to a malady most extraordinary in all its phenomena, having a close connection with the St. Vitus's dance, and, by a comparison of facts, which are altogether similar, affording us an instructive subject for contemplation. We allude to the disease called *Tarantism*, which made its first appearance in Apulia, and thence spread over the other provinces of Italy, where, during some centuries, it pre-

graves and fields in the night, and will not be persuaded but that they are wolves, or some such beasts. *Aëtius* (Lib. 6. cap. 11.) and *Paulus* (Lib. 3. cap. 16.) call it a kind of *melancholy*; but I should rather refer it to *madness*, as most do. Some make a doubt of it, whether there be any such disease. *Donat. ab Altomari* (Cap. 9. Art. Med.) saith, that he saw two of them in his time: *Wierus* (*De præstig. Demonum*, l. 3. cap. 21.) tells a story of such a one at Padua, 1541, that would not believe to the contrary but that he was a wolf. He hath another instance of a Spaniard, who thought himself a bear. *Forestus* (*Observat. lib. 10. de Morbis Cerebri*, c. 15.) confirms as much by many examples; one, among the rest, of which he was an eye-witness, at Alcmaer in Holland.—A poor husbandman that still hunted about graves, and kept in churchyards, of a pale, black, ugly, and fearful look. Such, belike, or little better, were king Prætus' daughters (*Hippocrates* lib. de insanîâ), that thought themselves kine: and Nebuchadnezzar, in Daniel, as some interpreters hold, was only troubled with this kind of madness. This disease, perhaps, gave occasion to that bold assertion of Pliny (Lib. 8. cap. 22. *homines interdum lupos fieri; et contra*), *some men were turned into wolves in his time, and from wolves to men again*; and to that fable of Pausanias, of a man that was ten years a wolf, and afterward turned to his former shape; to Ovid's (*Met. lib. 1.*) tale of Lycaon, etc. He that is desirous to hear of this disease, or more examples, let him read *Austin* in his eighteenth book, de *Civitate Dei*, cap. 5; *Mizaldus*, cent. 5. 77; *Schenkius*, lib. 1. *Hildesheim, Spicil. 2. de manîâ*; *Forestus*, lib. 10. *de morbis cerebri*; *Olaus Magnus*; *Vicentius Bellavicensis, spec. met.* lib. 31. c. 122; *Pierius, Bodine, Zuinger, Zeitgur, Peucer, Wierus, Spranger, etc.* This malady, saith *Avicenna*, troubleth men most in February, and is nowadays frequent in Bohemia and Hungary, according to *Heurnius*. (Cap. de Man.) *Schernitzius* will have it common in Livonia. They lie hid, most part, all day, and go abroad in the night, barking, howling, at graves and deserts; *they have usually hol-*

vailed as a great epidemic. In the present times it has vanished, or at least has lost altogether its original importance, like the St. Vitus's dance, lycanthropy, and witchcraft.

SECT. 2.—MOST ANCIENT TRACES.—
CAUSES.

The learned Nicholas Perotti* gives the earliest account of this strange disorder. Nobody had the least doubt that it was caused by the

low eyes, scabbed legs and thighs, very dry and pale (Ulcerata crura; sitis ipsa adest immodica; pallidi; lingua sicca), saith *Altomarus*: he gives a reason there of all the symptoms, and sets down a brief cure of them.—*Burton's Anatomy of Melancholy*. Tenth Edit.: 8vo. 1804. Vol. I. Page 13, et seq.

It is surprising that so learned a writer as *Burton* should not have alluded to *Oribasius*, who flourished 140 years before *Aëtius*, and of whom *Freind* says, "In auctore hoc miri cujusdam morbi prima mentio est; is *Δυκάνθρωπος* sive *Δυκάνθρωπια* dicitur, estque melancholiæ, aut insanix, species quænam ita ab illo descripta: 'Quos hoc malum infestus habet, nocturno tempore domo egressi, Lupos in omnibus rebus imitantur, et ad diem usque circa tumulos vagantur mortuorum. Hos ita cognosce: pallidi sunt, oculos hebetes et siccos, non illachrymantes, eosque concavos habent: lingua siccissima est, nulla penitus in ore saliva conspicitur, siti enecti; crura vero, quia noctu sæpe offendunt, sine remedio exulcerata.'—'Quod ad morbum ipsum attinet, si peregrinantibus fides adhibenda est, fuit olim in quibusdam regionibus, ut in Livonia, Hibernia, et aliis locis visi non infrequens,'" etc.—*J. Freind. Opera omnia Med.* fol. London, 1733.

De hujus morbi antiquitatibus vide elegantem *Böttigeri* disputationem in *Sprengelii* Beitr. z. Gesch. d. Med. 11. p. 1—45.—*Blancard. Lexic. Med.* Edit. noviss. 8vo. Lipsiæ, 1832.—*Transl. note.*

* Born 1430, died 1480. Cornucopiæ linguæ. Basil. 1536. fol. Comment. in primum *Martialis* Epigramma, p. 51, 52. "Est et alius stellio ex araneorum genere, qui, simili modo, ascalabotes a Græcis dicitur, et colotes et galeotes, lentiginosus in cavernulis dehiscentibus, per æstum terræ habitans. Hic majorum nostrorum temporibus in Italia visus non fuit, nunc frequens in Apulia visitur. Aliquando etiam in Tarquinesi et Corniculano agro, et vulgo similiter *tarantula* vocatur. Morsus ejus perraro interemit hominem, semistupidum tamen facit, et varie afficit, *tarantulam* vulgo appellant. *Quidam cantu audit, aut sono, ita excitantur,*

bite of the *tarantula*,* a ground-spider common in Apulia; and the fear of this insect was so general, that its bite was in all probability much oftener imagined, or the sting of some other kind of insect mistaken for it, than actually received. The word *tarantula* is apparently the same as *terrantola*, a name given by the Italians to the stellio of the old Romans, which was a kind of lizard,† said to be poisonous, and invested by credulity with such extraordinary qualities, that, like the serpent of the Mosaic account of the Creation, it personified, in the imaginations of the vulgar, the notion of cunning, so that even the jurists designated a cunning fraud by the appellation of a "stellionatus."‡ Perotti expressly assures us that this reptile was called by the Romans *tarantula*; and since he himself, who was one of the most distinguished authors of his time, strangely confounds spiders and lizards together, so that he considers the Apulian *tarantula*, which he ranks among the class of spiders, to have the same

ut pleni lætitiæ et semper ridentes saltent, nec nisi defatigati et semineces desistant. Alii semper flentes, quasi desiderio suorum miserabilem vitam agant. Alii visa muliere, libidinis statim ardore incensi, veluti furentes in eam prosiliant. Quidam ridendo, quidam flendo moriantur."

* *Lycosa Tarantula*. The *Aranea Tarantula* of *Linneus*, who, after the technical description, says, "Habitat in Europa australi, potissimum Apulia, in Barbaria, in Tauria, Russiæque australis desertis, in Astracania ad montes Sibirix Altaicos usque, in Persia et reliquo Oriente, in solo præsertim argillaceo in antris, morsu quamvis interdum dolente, olimque famosum tarantismum musica sanandum excitare credito, vix unquam periculoso, cinerascens, oculis duobus prioribus rubris, thorace in areas nigras diviso in centrum concurrentes, abdomine supra fasciis maxillisque nigris."—*Systema Naturæ*. Tom. I. pars v. p. 2956.

For particulars regarding the habits of the *Lycosæ*, see *Griffith's* Transl. of *Cuvier's* Animal Kingdom. Vol. XIII. p. 427 and p. 480. et seq. The author states that *M. Chabrier* has published (Soc. Acad. de Lille 4^e cahier) some curious observations on the *Lycosa tarantula* of the south of France.—*Transl. note.*

† *Matthiol.* Commentar. in Dioscorid. L. II. ch. 59. p. 363. Ed. Venet. 1565. fol.

‡ *Perotti*, loc. cit.

meaning as the kind of lizard called *ἀσκαλαβώτης*,* it is the less extraordinary that the unlearned country people of Apulia should confound the much dreaded ground-spider with the fabulous star lizard,† and appropriate to the one the name of the other. The derivation of the word tarantula, from the city of Tarentum, or the river Thara, in Apulia,‡ on the banks of which this insect is said to have been most frequently found, or at least its bite to have had the most venomous effect, seems not to be supported by authority. So much for the name of this famous spider, which, unless we are greatly mistaken, throws no light whatever upon the nature of the disease in question. Naturalists who, possessing a knowledge of the past, should not misapply their talents by employing them in establishing the dry distinction of forms, would find here much that calls for research, and their efforts would clear up many a perplexing obscurity.

Perotti states that the tarantula, that is, the spider so called, was not met with in Italy in former times, but that in his day it had become common, especially in Apulia, as well as in some other districts. He deserves, however, no great confidence as a naturalist, notwithstanding his having delivered lectures in Bologna on medicine and other sciences.§ He at least has neglected to prove his assertion, which is not borne out by any analogous phenomenon observed in modern times with regard to the history of the spider species. It is by no means to be admitted that the tarantula did not make its appearance in Italy before the disease ascribed to its bite became remarkable, even though tempests more violent than

those unexampled storms which arose at the time of the Black Death* in the middle of the fourteenth century had set the insect world in motion; for the spider is little, if at all susceptible of those cosmical influences which at times multiply locusts and other winged insects to a wonderful extent, and compel them to migrate.

The symptoms which Perotti enumerates as consequent on the bite of the tarantula agree very exactly with those described by later writers. Those who were bitten generally fell into a state of melancholy, and appeared to be stupefied, and scarcely in possession of their senses. This condition was, in many cases, united with so great a sensibility to music, that, at the very first tones of their favorite melodies, they sprang up, shouting for joy, and danced on without intermission, until they sank to the ground exhausted and almost lifeless. In others the disease did not take this cheerful turn. They wept constantly, and as if pining away with some unsatisfied desire, spent their days in the greatest misery and anxiety. Others, again, in morbid fits of love cast their longing looks on women, and instances of death are recorded, which are said to have occurred under a paroxysm of either laughing or weeping.

From this description, incomplete as it is, we may easily gather that tarantism, the essential symptoms of which are mentioned in it, could not have originated in the fifteenth century, to which Perotti's account refers; for that author speaks of it as a well-known malady, and states that the omission to notice it by older writers, was to be ascribed solely to the want of education in Apulia, the only province probably where the disease at that time prevailed. A nervous disorder that had arrived at so high a degree of development, must have been long in existence, and doubtless had required an elabo-

* Probably *Lacerta Gecko*, as also the synonymes, *καλώτης* and *γαλεώτης*, quoted by him.

† *Lacerta Stellio*. It need scarcely be observed that the venomous nature of this harmless creature was a pure invention of Roman superstition.

‡ See *Athanas. Kircher*. loc. cit.

§ From 1451—1458. *Tiraboschi*. VI. 11. p. 356.

* See p. 11, et seq.

rate preparation by the concurrence of general causes.

The symptoms which followed the bite of venomous spiders were well known to the ancients, and had excited the attention of their best observers, who agree in their descriptions of them. It is probable that among the numerous species of their phalangium,* the Apulian tarantula is included, but it is difficult to determine this point with certainty, more especially, because in Italy the tarantula was not the only insect which caused this nervous affection, similar results being likewise attributed to the bite of the scorpion. Lividity of the whole body as well as of the countenance, difficulty of speech, tremor of the limbs, icy coldness, pale urine, depression of spirits, head-ache, a flow of tears, nausea, vomiting, sexual excitement, flatulence, syncope, dysuria, watchfulness, lethargy, even death itself, were cited by them as the consequences of being bitten by venomous spiders, and they made little distinction as to their kinds. To these symptoms we may add the strange rumor, repeated throughout the middle ages, that persons who were bitten, ejected by the bowels and kidneys, and even by vomiting, substances resembling a spider's web.

Nowhere, however, do we find any mention made that those affected felt an irresistible propensity to dancing, or that they were accidentally cured by it. Even Constantine of Africa, who lived 500 years after Aëtius, and as the most learned physician of the school of Salerno, would certainly not have passed over so acceptable a subject of remark, knows nothing of such a memorable course of this disease arising from poison, and merely repeats the observations of his Greek

* *Aëtius*, who wrote at the end of the sixth century, mentions six which occur in the older works. 1. *ράγιον*, 2. *λίκος*, 3. *μυρμήκειον*, 4. *κρανοκοιλίπτης*, by others, *κεφαλοχρούστης*, 5. *σκληροκέφαλον*, and 6. *σκολήκιον*. Tetrabl. IV. Serm. I. ch. 18. in *Hen. Steph.* Compare *Dioscorid.* Lib. VI. ch. 42. *Matthiol.* Commentar. in *Dioscorid.* p. 1447. *Nicand.* Theriac. V. 8. 715. 755. 654.

predecessors.* Gariopontus,† a Salernian physician of the eleventh century, was the first to describe a kind of insanity, the remote affinity of which to the tarantula disease is rendered apparent by a very striking symptom. The patients in their sudden attacks behaved like maniacs, sprang up, throwing their arms about with wild movements, and, if perchance a sword was at hand, they wounded themselves and others, so that it became necessary carefully to secure them. They imagined that they heard voices, and various kinds of sounds, and if during this state of illusion, the tones of a favorite instrument happened to catch their ear, they commenced a spasmodic dance, or ran with the utmost energy which they could muster, until they were totally exhausted. These dangerous maniacs, who, it would seem, appeared in considerable numbers, were looked upon as a legion of devils, but on the causes of their malady this obscure writer adds nothing further than that he believes (oddly enough) that it may sometimes be excited by the bite of a mad dog. He calls the disease *Anteneasmus*, by which is meant no doubt the *Enthusiasmus* of the Greek physicians.‡ We cite this

* *Aranearum multæ species sunt. Quæ ubi mordent, faciunt multum dolorem, ruborem, frigidum sudorem, et citrinum colorem. Aliquando quasi stranguriæ in urina durtiem, et virgæ extensionem, intra inguina, et genua, tetinositatem in stomacho. Lingvæ extensionem, ut eorum sermo non possit discerni. Vomunt humiditatem quasi araneæ telam, et ventris emolliationem similiter, etc. De communibus medico cognitu necessariis locis. Lib. VIII. cap. 22. p. 235. Basil. 1539. fol.*

† He lived in the middle of the eleventh century, and was a junior contemporary with *Constantine of Africa.* *J. Chr. Gottl. Ackermann*, *Regimen sanitatis Salerni sive Scholæ Salernitanæ de conservanda bona valetudine præcepta.* Stendal. 1790. 8vo. p. 38.

‡ The passage is as follows: "*Anteneasmus est species manię periculosa nimium. Irritantur tanquam maniaci, et in se manus injiciunt. Hi subito arripiuntur, cum saltatione manuum et pedum, quia intra aurium cavernas quasi voces diversas sonare falso audiunt, ut sunt diversorum instrumentorum musicæ soni; quibus delectantur, ut statim saltent, aut cursum velocem arripiant; subito arripientes gladium percutiunt se aut alios; morsi-*

phenomenon as an important forerunner of tarantism, under the conviction that we have thus added to the evidence that the development of this latter must have been founded on circumstances which existed from the twelfth to the end of the fourteenth century; for the origin of tarantism itself is referable, with the utmost probability, to a period between the middle and the end of this century, and is consequently contemporaneous with that of the St. Vitus's dance (1374). The influence of the Roman Catholic religion, connected as this was, in the middle ages, with the pomp of processions, with public exercises of penance, and with innumerable practices which strongly excited the imaginations of its votaries, certainly brought the mind to a very favorable state for the reception of a nervous disorder. Accordingly, so long as the doctrines of Christianity were blended with so much mysticism, these unhallowed disorders prevailed to an important extent, and even in our own days we find them propagated with the greatest facility where the existence of superstition produces the same effect in more limited districts, at it once did among whole nations. But this is not all. Every country in Europe, and Italy perhaps more than any other, was visited during the middle ages by frightful plagues, which followed each other in such quick succession, that they gave the exhausted people scarcely any time for recovery. The oriental bubo-plague ravaged Italy*

sixteen times between the years 1119 and 1340. Small-pox and measles were still more destructive than in modern times, and recurred as frequently. St. Anthony's fire was the dread of town and country; and that disgusting disease, the leprosy, which in consequence of the crusades, spread its insinuating poison in all directions, snatched from the paternal hearth innumerable victims who, banished from human society, pined away in lonely huts, whither they were accompanied only by the pity of the benevolent and their own despair. All these calamities, of which the moderns have scarcely retained any recollection, were heightened to an incredible degree by the Black Death,* which spread boundless devastation and misery over Italy. Men's minds were everywhere morbidly sensitive; and as it happens with individuals whose senses, when they are suffering under anxiety, become more irritable, so that trifles are magnified into objects of great alarm, and slight shocks, which would scarcely affect the spirits when in health, give rise in them to severe diseases, so was it with this whole nation, at all times so alive to emotions, and at that period so sorely pressed with the horrors of death.

The bite of venomous spiders, or rather the unreasonable fear of its consequences, excited at such a juncture, though it could not have done so at an earlier period, a violent nervous disorder, which, like St. Vitus's dance in Germany, spread by sympathy, increasing in severity as it took a wider range, and still further extending its ravages from its long continuance. Thus, from the middle of the fourteenth century, the furies of *the Dance* brandished their scourge over afflicted mortals; and music, for which the inhabitants of Italy, now probably for the first time, manifested

buss se et alios attricare non dubitant. Hos Latini percussores, alii dicunt dæmonis legiones esse, ut dum eos arripiunt, vexent et vulnerent. Diligentia eis imponenda est, quando istos sonos audierint, includantur, et post accessionis horas phlebotomentur, et venter eis moveatur. Cibos leves accipiant cum calida aqua, ut omnis ventositas, quæ in cerebro sonum facit, egeratur. In ipsa accessione silentium habeant. Quod si spumam per os ejecerint, *vel ex canis rabidi morsu causa fuerit*, intra septem dies moriuntur." *Gario-ponti*, medici vetustissimi, de morborum causis, accidentibus et curationibus. Libri VIII. Basil. 1536. 8vo. L. I. ch. 2. p. 27.

* *J. P. Papon*. De la peste, ou les épo-

ques mémorables de ce fléau. Paris, an 8, 8vo. Tome II. page 270. (1119. 1126. 1135. 1193. 1225. 1227. 1231. 1234. 1243. 1254. 1288. 1301. 1311. 1316. 1335. 1340.)

* 1347 to 1350.

susceptibility and talent, became capable of exciting ecstatic attacks in those affected, and then furnished the magical means of exorcising their melancholy.

SECT. 3.—INCREASE.

At the close of the fifteenth century we find that Tarantism had spread beyond the boundaries of Apulia, and that the fear of being bitten by venomous spiders had increased. Nothing short of death itself was expected from the wound which these insects inflicted, and if those who were bitten escaped with their lives, they were said to be seen pining away in a desponding state of lassitude. Many became weak-sighted or hard of hearing, some lost the power of speech, and all were insensible to ordinary causes of excitement. Nothing but the flute or the cithern afforded them relief.* At the sound of these instruments they awoke as it were by enchantment, opened their eyes, and moving slowly at first, according to the measure of the music, were, as the time quickened, gradually hurried on to the most passionate dance. It was generally observable that country people, who were rude, and ignorant of music, evinced on these occasions an unusual degree of grace, as if they had been well practiced in elegant movements of the body; for it is a peculiarity in nervous disorders of this kind, that the organs of motion are in an altered condition, and are completely under the control of the overstrained spirits. Cities and villages alike resounded throughout the summer season with the notes of fifes, clarionets, and Turkish drums; and patients were everywhere to be met with who looked to dancing as their only remedy. Alexander ab Alexandro,† who gives this account, saw a

young man in a remote village who was seized with a violent attack of Tarantism. He listened with eagerness and a fixed stare to the sound of a drum, and his graceful movements gradually become more and more violent, until his dancing was converted into a succession of frantic leaps, which required the utmost exertion of his whole strength. In the midst of this overstrained exertion of mind and body the music suddenly ceased, and he immediately fell powerless to the ground, where he lay senseless and motionless until its magical effect again aroused him to a renewal of his impassioned performances.

At the period of which we are treating there was a general conviction, that by music and dancing the poison of the Tarantula was distributed over the whole body, and expelled through the skin, but that if there remained the slightest vestige of it in the vessels, this became a permanent germ of the disorder, so that the dancing fits might again and again be excited *ad infinitum* by music. This belief, which resembled the delusion of those insane persons who, being by artful management freed from the imagined causes of their sufferings, are but for a short time released from their false notions, was attended with the most injurious effects: for in consequence of it those affected necessarily became by degrees convinced of the incurable nature of their disorder. They expected relief, indeed, but not a cure, from music; and when the heat of summer awakened a recollection of the dancers of the preceding year, they, like the St. Vitus's dancers of the same period before St. Vitus's day, again grew dejected and misanthropic, until, by music and dancing, they dispelled the melancholy which had be-

* Athanasius Kircher gives a full account of the instruments then in use, which differed very slightly from those of our days. *Murgia universalis, sive Ars magna consoni et dissoni*. Romæ, 1650, fol. Tom. I. p. 477.

† *Genialium dierum Libri VI*. Lugdun. Bat.

1673. Svo. Lib. II. ch. 17. p. 398. *Alex. ab Alexandro*, a distinguished Neapolitan lawyer, lived from 1461 to 1523. The historian *Gaudentius Merula*, who became celebrated about 1536, makes only a very slight mention of the Tarantism. *Memorabilium Gaud. Merulae Novariensis opus, etc.*, Lugdun. 1656. Svo. L. III. ch. 69. p. 251.

come with them a kind of sensual enjoyment.

Under such favorable circumstances it is clear that Tarantism must every year have made further progress. The number of those affected by it increased beyond all belief, for whoever had either actually been, or even fancied that he had been, once bitten by a poisonous spider or scorpion, made his appearance annually wherever the merry notes of the Tarantella resounded. Inquisitive females joined the throng and caught the disease, not indeed from the poison of the spider, but from the mental poison which they eagerly received through the eye; and thus the cure of the *Tarantati* gradually became established as a regular festival of the populace, which was anticipated with impatient delight.

Without attributing more to deception and fraud than to the peculiar nature of a progressive mental malady, it may readily be conceived that the cases of this strange disorder now grew more frequent. The celebrated Matthioli,* who is worthy of entire confidence, gives his account as an eye-witness. He saw the same extraordinary effects produced by music as Alexandro, for, however tortured with pain, however hopeless of relief the patients appeared, as they lay stretched on the couch of sickness, at the very first sounds of those melodies which had made an impression on them—but this was the case only with the Tarantellas composed expressly for the purpose—they sprang up as if inspired with new life and spirit, and, unmindful of their disorder, began to move in measured gestures, dancing for hours together without fatigue, until, covered with a kindly perspiration, they felt a salutary degree of lassitude, which relieved them for a time at least, perhaps even for a whole year, from their dejection and oppressive feeling of general indisposition. Alexandro's

* *Petr. And. Matthioli* Commentarii in Dioscorid. Venet. 1565. fol. Lib. II. ch. 57. p. 362.

experience of the injurious effects resulting from a sudden cessation of the music was generally confirmed by Matthioli. If the clarionets and drums ceased for a single moment, which as the most skillful players were tired out by the patients, could not but happen occasionally, they suffered their limbs to fall listless, again sank exhausted to the ground, and could find no solace but in a renewal of the dance. On this account care was taken to continue the music until exhaustion was produced; for it was better to pay a few extra musicians, who might relieve each other, than to permit the patient, in the midst of this curative exercise, to relapse into so deplorable a state of suffering. The attack consequent upon the bite of the Tarantula, Matthioli describes as varying much in its manner. Some became morbidly exhilarated, so that they remained for a long while without sleep, laughing, dancing, and singing in a state of the greatest excitement. Others, on the contrary, were drowsy. The generality felt nausea and suffered from vomiting, and some had constant tremors. Complete mania was no uncommon occurrence, not to mention the usual dejection of spirits and other subordinate symptoms.

SECT. 4.—IDIOSYNCRACIES.—MUSIC.

Unaccountable emotions, strange desires, and morbid sensual irritations of all kinds, were as prevalent as in the St. Vitus's dance and similar great nervous maladies. So late as the sixteenth century patients were seen armed with glittering swords which, during the attack, they brandished with wild gestures, as if they were going to engage in a fencing match.* Even women scorned all female delicacy † and, adopting this impassioned

* *Athanas. Kircher. Magnes sive de Arte magnetica* Opus. Rom. 1654. fol. p. 589.

† *Joann. Juvenis de antiquitate et varia Tarantinorum fortuna* Lib. VIII. Neapol. 1589. fol. Lib. II. ch. 17. p. 107. With the exception of the statement quoted, *Juvenis* has borrowed almost everything from *Matthioli*.

demeanor, did the same; and this phenomenon, as well as the excitement which the Tarantula dancers felt at the sight of anything with metallic luster was quite common up to the period when, in modern times, the disease disappeared.*

The abhorrence of certain colors and the agreeable sensations produced by others, were much more marked among the excitable Italians than was the case in the St. Vitus's dance with the more phlegmatic Germans. Red colors, which the St. Vitus's dancers detested, they generally liked, so that a patient was seldom seen who did not carry a red handkerchief for his gratification, or greedily feast his eyes on any articles of red clothing worn by the by-standers. Some preferred yellow, others black colors, of which an explanation was sought, according to the prevailing notions of the times, in the difference of temperaments.† Others again were enraptured with green; and eye-witnesses describe this rage for colors as so extraordinary, that they can scarcely find words with which to express their astonishment. No sooner did the patients obtain a sight of the favorite color than, new as the impression was, they rushed like infuriated animals toward the object, devoured it with their eager looks, kissed and caressed it in every possible way, and gradually resigning themselves to softer sensations, adopted the languishing expression of enamored lovers, and embraced the handkerchief, or whatever other article it might be, which was presented to them, with the most intense ardor, while the tears streamed from their

eyes as if they were completely overwhelmed by the inebriating impression on their senses.

The dancing fits of a certain Capuchin friar in Tarentum excited so much curiosity, that Cardinal Cajetano proceeded to the monastery, that he might see with his own eyes what was going on. As soon as the monk, who was in the midst of his dance, perceived the spiritual prince clothed in his red garments, he no longer listened to the Tarantella of the musicians, but with strange gestures endeavored to approach the Cardinal, as if he wished to count the very threads of his scarlet robe, and to allay his intense longing by its odor. The interference of the spectators, and his own respect, prevented his touching it, and thus the irritation of his senses not being appeased, he fell into a state of such anguish and disquietude, that he presently sank down in a swoon, from which he did not recover until the Cardinal compassionately gave him his cape. This he immediately seized in the greatest ecstasy, and pressed now to his breast, now to his forehead and cheeks, and then again commenced his dance as if in the frenzy of a love fit.*

At the sight of colors which they disliked, patients flew into the most violent rage, and, like the St. Vitus's dancers when they saw red objects, could scarcely be restrained from tearing the clothes of those spectators who raised in them such disagreeable sensations.†

Another no less extraordinary symptom was the ardent longing for the sea which the patients evinced. As the St. John's dancers of the fourteenth century saw, in the spirit, the heavens open and display all the splendor of the saints, so did those who were suffering under the bite of the Tarantula feel themselves attracted to the boundless expanse of the blue ocean, and lost themselves in its contemplation. Some songs,

* *Simon. Alloys. Tudecius*, physician to Queen Christine, saw a case of this kind in July, 1656. *Bonet. Medicina septentrionalis collatit.* Genév. 1684. fol.

† *Epiphan. Ferdinand.* Centum historiae seu observationes et casus medici. Venet. 1621. fol. Hist. LXXXI. p. 259. *Ferdinando*, a physician in Messapia at the commencement of the seventeenth century, has collected, with much diligence, the various statements respecting the Tarantism of his time. He "*was himself an eye-witness of it*" (p. 265), and is by far the most copious of all the old writers on this subject.

* *Kircher*, loc. cit. pp. 588, 589.

† *Ferdinand*, p. 259.

which are still preserved, marked this peculiar longing, which was moreover expressed by significant music, and was excited even by the bare mention of the sea.* Some, in whom this susceptibility was carried to the greatest pitch, cast themselves with blind fury into the blue waves,† as the St. Vitus's dancers occasionally did into rapid rivers. This condition, so opposite to the frightful state of hydrophobia, betrayed itself in others only in the pleasure afforded them by the sight of clear water in glasses. These they bore in their hands while dancing, exhibiting at the same time strange movements, and giving way to the most extravagant expressions of their feelings. They delighted also when, in the midst of the space allotted for this exercise, more ample vessels, filled with water, and surrounded by rushes and water plants, were placed, in which they bathed their heads and arms with evident pleasure.‡ Others there were who rolled about on the ground, and were, by their own desire, buried up to the neck in earth, in order to alleviate the misery of their condition, not to mention an endless variety of other symptoms which showed the perverted action of the nerves.

All these modes of relief, however, were as nothing in comparison with the irresistible charms of musical sound. Attempts had indeed been made in ancient times to mitigate the pain of sciatica,§ or the paroxysms of mania,|| by the soft melody of the flute, and, what is still more applicable to the present purpose, to remove the danger arising

from the bite of vipers* by the same means. This, however, was tried only to a very small extent. But after being bitten by the Tarantula, there was, according to popular opinion, no way of saving life except by music, and it was hardly considered as an exception to the general rule, that every now and then the bad effects of a wound were prevented by placing a ligature on the bitten limb, or by internal medicine, or that strong persons occasionally withstood the effects of the poison, without the employment of any remedies at all.† It was much more common, and is quite in accordance with the nature of so exquisite a nervous disease, to hear accounts of many who, when bitten by the Tarantula, perished miserably because the Tarantella, which would have afforded them deliverance, was not played to them.‡ It was customary, therefore, so early as the commencement of the seventeenth century, for whole bands of musicians to traverse Italy during the summer months, and, what is quite unexampled either in ancient or modern times, the cure of the *Tarantati* in the different towns and villages was undertaken on a grand scale. This season of dancing and music was called "the women's little carnival,"§ for it was women more especially who conducted the arrangements; so that throughout the whole country they saved up their spare money, for the purpose of rewarding the welcome musicians, and many of them neglected their household employments to participate in this festival of the sick. Mention is even made of one benevolent lady (Mita Lupa) who had expended her whole fortune on this object.||

* For example:—

"Allu mari mi portati
Se volete che mi sanati.
Allu mari, alla via :
Cosi m'ama la donna mia.
Allu mari allu mari :
Mentre campo, t'aggio amari."

Kircher, loc. cit. p. 592.—Appendix, No. V.

† *Ferdinand*. loc. cit. p. 257.

‡ *Kircher*, p. 589.

§ *Plin. Hist. Nat.* Lib. XXVIII. ch. 2. p.

447. Ed. *Hard*.

|| *Cael. Aurelianus*. Chron. Lib. I. ch. 5. p.

335. Ed. *Amman*.

* *Democritus* and *Theophrastus* made mention of it. See *Gell. Noct. Attic. Lib. IV. ch.*

13.

† *Ferdinand*. p. 260.

‡ *Bagliv.* loc. cit. p. 618. From more decided statements, however, we learn, that of those who had been bitten only one or two in a thousand died. *Ferdinand*. p. 255.

§ *Il carnevalotto delle donne. Bagliv.* p.

617.

|| *Ferdinand*. pp. 254. 260.

The music itself was of a kind perfectly adapted to the nature of the malady, and it made so deep an impression on the Italians, that even to the present time, long since the extinction of the disorder, they have retained the Tarantella, as a particular species of music employed for quick lively dancing. The different kinds of Tarantella were distinguished, very significantly, by particular names, which had reference to the moods observed in the patients. Whence it appears that they aimed at representing by these tunes, even the idiosyncracies of the mind as expressed in the countenance. Thus there was one kind of Tarantella which was called "Panno rosso," a very lively impassioned style of music, to which wild dithyrambic songs were adapted; another, called "Panno verde," which was suited to the milder excitement of the senses, caused by green colors, and set to Idyllian songs of verdant fields and shady groves. A third was named "Cinque tempi;" a fourth "Moresca," which was played to a Moorish dance: a fifth, "Catena;" and a sixth, with a very appropriate designation, "Spallata," as if it were only fit to be played to dancers who were lame in the shoulder. This was the slowest and least in vogue of all.* For those who loved water they took care to select love songs, which were sung to corresponding music, and such persons delighted in hearing of gushing springs and rushing cascades and streams.† It is to be regretted that on this subject we are unable to give any further information, for only small fragments of songs, and a very few Tarantellas, have been preserved which belong to a period so remote as the beginning of the seventeenth, or at furthest the end of the sixteenth, century.‡

The music was almost wholly in

* *Ferdinand.* p. 259. Slow music made the Tarantel dancers feel as if they were crushed: *spezzati, minuzzati*, p. 260.

† *A. Kircher*, loc. cit.

‡ See Appendix, No. V.

the Turkish style (*aria Turchesca*), and the ancient songs of the peasantry of Apulia, which increased in number annually, were well suited to the abrupt and lively notes of the Turkish drum and the shepherd's pipe. These two instruments were the favorites in the country, but others of all kinds were played in towns and villages, as an accompaniment to the dances of the patients and the songs of the spectators. If any particular melody was disliked by those affected, they indicated their displeasure by violent gestures expressive of aversion. They could not endure false notes, and it is remarkable that uneducated boors, who had never in their lives manifested any perception of the enchanting power of harmony, acquired, in this respect, an extremely refined sense of hearing, as if they had been initiated into the profoundest secrets of the musical art.* It was a matter of every day's experience, that patients showed a predilection for certain Tarantellas, in preference to others, which gave rise to the composition of a great variety of these dances. They were likewise very capricious in their partialities for particular instruments; so that some longed for the shrill notes of the trumpet, others for the softest music produced by the vibration of strings.†

Tarantism was at its greatest height in Italy in the seventeenth century, long after the St. Vitus's Dance of Germany had disappeared. It was not the natives of the country only who were attacked by this complaint. Foreigners of every color and of every race, negroes, gypsies, Spaniards, Albanians, were in like manner affected by it.‡ Against the effects produced by the Tarantula's bite, or by the sight of the sufferers, neither youth nor age afforded any protection; so that even old men of ninety threw aside their crutches at

* *Bagliv.* loc. cit. p. 623.

† *A. Kircher*, loc. cit.

‡ *Ferdinand.* p. 262.

the sound of the Tarantella, and, as if some magic potion, restorative of youth and vigor, were flowing through their veins, joined the most extravagant dancers.* Ferdinando saw a boy five years old seized with the dancing mania,† in consequence of the bite of a Tarantula; and, what is almost past belief, were it not supported by the testimony of so credible an eye-witness, even deaf people were not exempt from this disorder so potent in its effect was the very sight of those affected, even without the exhilarating emotions caused by music.‡

Subordinate nervous attacks were much more frequent during this century than at any former period, and an extraordinary icy coldness was observed in those who were the subjects of them; so that they did not recover their natural heat until they had engaged in violent dancing.§ Their anguish and sense of oppression forced from them a cold perspiration; the secretion from the kidneys was pale,|| and they had so great a dislike to everything cold, that when water was offered them they pushed it away with abhorrence. Wine, on the contrary, they all drank willingly, without being heated by it, or in the slightest degree intoxicated.¶ During the whole period of the attack they suffered from spasms in the stomach, and felt a disinclination to take food of any kind. They used to abstain some time before the expected seizures from meat and from snails, which they thought rendered them more severe,** and their great thirst for wine may, therefore, in some measure, be attributable to the want of a more nutritious diet; yet the dis-

order of the nerves was evidently its chief cause, and the loss of appetite, as well as the necessity for support by wine, were its effects. Loss of voice, occasional blindness,* vertigo, complete insanity, with sleeplessness, frequent weeping without any ostensible cause, were all usual symptoms. Many patients found relief from being placed in swings or rocked in cradles;† others required to be roused from their state of suffering by severe blows on the soles of their feet; others beat themselves, without any intention of making a display, but solely for the purpose of allaying the intense nervous irritation which they felt; and a considerable number were seen with their bellies swollen,‡ like those of the St. John's dancers, while the violence of the intestinal disorder was indicated in others by obstinate constipation or diarrhœa and vomiting.§ These pitiable objects gradually lost their strength and their color, and creeping about with injected eyes, jaundiced complexions, and inflated bowels, soon fell into a state of profound melancholy, which found food and solace in the solemn tolling of the funeral bell, and in an abode among the tombs of cemeteries, as is related of the Lycanthropes of former times.

The persuasion of the inevitable consequences of being bitten by the tarantula, exercised a dominion over men's minds which even the healthiest and strongest could not shake off. So late as the middle of the sixteenth century, the celebrated Fracastoro found the robust bailiff of his landed estate groaning, and, with the aspect of a person in the extremity of despair, suffering the very agonies of death, from a sting in the neck, inflicted by an insect which was believed to be a tarantula. He kindly administered, without delay, a potion of vinegar and Armenian bole, the great remedy of those days for the

* This is said of an old man of Avetrano, who was ninety-four years of age. Pp. 254. 257.

† Idem, p. 261.

‡ Ferdinando saw a man who was hard of hearing listen with great eagerness during the dance, and endeavor to approach the drums and fifes as nearly as possible. P. 258.

§ Idem, p. 260.

|| Idem, p. 256.

¶ Idem, p. 260.

** Idem, p. 261.

* Idem, p. 256.

† Idem, p. 258.

‡ Idem, p. 257.

§ Ferdinand. p. 256.

plague and all kinds of animal poisons, and the dying man was, as if by a miracle, restored to life and the power of speech.* Now, since it is quite out of the question that the bole could have anything to do with the result in this case, notwithstanding Fracastoro's belief in its virtues, we can only account for the cure by supposing, that a confidence in so great a physician prevailed over this fatal disease of the imagination, which would otherwise have yielded to scarcely any other remedy except the tarantella. Ferdinando was acquainted with women who, for thirty years in succession, had overcome the attacks of this disorder by a renewal of their annual dance—so long did they maintain their belief in the yet undestroyed poison of the tarantula's bite, and so long did that mental affection continue to exist, after it had ceased to depend on any corporeal excitement.†

Wherever we turn we find that this morbid state of mind prevailed, and was so supported by the opinions of the age, that it needed only a stimulus in the bite of the tarantula, and the supposed certainty of its very disastrous consequences, to originate this violent nervous disorder. Even in Ferdinando's time there were many who altogether denied the poisonous effects of the tarantula's bite, while they considered the disorder, which annually set Italy in commotion, to be a melancholy depending on the imagination.‡ They dearly expiated this skepticism, however, when they were led, with an inconsiderate hardness, to test their opinions by experiment; for many of them became the subjects of severe tarantism, and even a distinguished prelate, Jo. Baptist Quinzato, Bishop of Foligno, having allowed himself, by way of a joke, to be bitten by a tarantula, could obtain a cure in no other way than by being, through the influence of the tarantella,

compelled to dance.* Others among the clergy, who wished to shut their ears against music, because they considered dancing derogatory to their station, fell into a dangerous state of illness by thus delaying the crisis of the malady, and were obliged at last to save themselves from a miserable death by submitting to the unwelcome but sole means of cure.† Thus it appears that the age was so little favorable to freedom of thought, that even the most decided skeptics, incapable of guarding themselves against the recollection of what had been presented to the eye, were subdued by a poison, the power of which they had ridiculed, and which was in itself inert in its effect.

SECT. 5.—HYSTERIA.

Different characteristics of morbidly excited vitality having been rendered prominent by tarantism in different individuals, it could not but happen that other derangements of the nerves would assume the form of this, whenever circumstances favored such a transition. This was more especially the case with hysteria, that proteiform and mutable disorder, in which the imaginations, the superstitions, and the follies of all ages have been evidently reflected. The "Carnevaletto delle Donne" appeared most opportunely for those who were hysterical. Their disease received from it, as it had at other times from other extraordinary customs, a peculiar direction; so that whether bitten by the tarantula or not, they felt compelled to participate in the dances of those affected, and to make their appearance at this popular festival, where they had an opportunity of triumphantly exhibiting their sufferings. Let us here pause to consider the kind of life which the women in Italy led. Lonely, and deprived by cruel custom of social intercourse, that fairest of all enjoyments, they dragged on a miserable existence. Cheerfulness and an inclination to

* De Contag. Lib. III. ch. 2, p. 212. Opera Lugdun. 1591. 8vo.

† De Contag. p. 254.

‡ Ibid.

* Idem, p. 262.

† Idem, p. 261.

sensual pleasures passed into compulsory idleness, and in many, into black despondency.* Their imaginations became disordered—a pallid countenance and oppressed respiration bore testimony to their profound sufferings. How could they do otherwise, sunk as they were in such extreme misery, than seize the occasion to burst forth from their prisons, and alleviate their miseries by taking part in the delights of music. Nor should we here pass unnoticed a circumstance which illustrates, in a remarkable degree, the psychological nature of hysterical sufferings, namely, that many chlorotic females, by joining the dancers at the Carnevalto, were freed from their spasms and oppression of breathing for the whole year, although the corporeal cause of their malady was not

removed.* After such a result, no one could call their self-deception a mere imposture, and unconditionally condemn it as such.

This numerous class of patients certainly contributed not a little to the maintenance of the evil, for their fantastic sufferings, in which dissimulation and reality could scarcely be distinguished even by themselves, much less by their physicians, were imitated, in the same way as the distortions of the St. Vitus's dancers, by the impostors of that period. It was certainly by these persons also that the number of subordinate symptoms was increased to an endless extent, as may be conceived from the daily observation of hysterical patients, who, from a morbid desire to render themselves remarkable, deviate from the laws of moral propriety. Powerful sexual excitement had often the most decided influence over their condition. Many of them exposed themselves in the most indecent manner, tore their hair out by the roots, with howling and gnashing of their teeth; and when, as was sometimes the case, their unsatisfied passion hurried them on to a state of frenzy, they closed their existence by self-destruction; it being common at that time for these unfortunate beings to precipitate themselves into the wells.†

* "The imaginations of women are always more excitable than those of men, and they are therefore susceptible of every folly when they lead a life of strict seclusion, and their thoughts are constantly turned inward upon themselves. Hence in orphan asylums, hospitals, and convents, the nervous disorder of one female so easily and quickly becomes the disorder of all. I have read in a good medical work that a nun, in a very large convent in France, began to mew like a cat; shortly afterward other nuns also mewed. At last all the nuns mewed together every day at a certain time for several hours together. The whole surrounding Christian neighborhood heard, with equal chagrin and astonishment, this daily cat-concert, which did not cease until all the nuns were informed that a company of soldiers were placed by the police before the entrance of the convent, and that they were provided with rods, and would continue whipping them until they promised not to mew any more.

"But of all the epidemics of females which I myself have seen in Germany, or of which the history is known to me, the most remarkable is the celebrated Convent epidemic of the fifteenth century, which Cardan describes, and which peculiarly proves what I would here enforce. A nun in a German nunnery fell to biting all her companions. In the course of a short time all the nuns of this convent began biting each other. The news of this infatuation among the nuns soon spread, and it now passed from convent to convent throughout a great part of Germany, principally Saxony and Brandenburg. It afterward visited the nunneries of Holland, and at last the nuns had the biting mania even as far as Rome."—*Zimmermann* on solitude, Vol. II. Leipsig. 1784.—*Transl. note.*

It might hence seem that, owing to the conduct of patients of this description, so much of fraud and falsehood would be mixed up with the original disorder, that having passed into another complaint, it must have been itself destroyed. This, however, did not happen in the first half of the seventeenth century; for as a clear proof that Tarantism remained substantially the same and quite unaffected by Hysteria, there were in many places, and in particular at Messapia, fewer women affected than men, who in their turn were, in no small proportion, led into temptation

* *Georg. Baglivi*, Diss. de Anatome, morsu et effectibus Tarantulæ. pp. 616, 617. Opp. Lugdun. 1710. 4to.

† *Ferdinando*, p. 257.

by sexual excitement.* In other places, as for example at Brindisi, the case was reversed, which may, as in other complaints, be in some measure attributable to local causes. Upon the whole it appears, from concurrent accounts, that women by no means enjoyed the distinction of being attacked by Tarantism more frequently than men.

It is said that the cicatrix of the tarantula bite, on the yearly or half-yearly return of the fit, became discolored,† but on this point the distinct testimony of good observers is wanting to deprive the assertion of its utter improbability.

It is not out of place to remark here, that about the same time that Tarantism attained its greatest height in Italy, the bite of venomous spiders was more feared in distant parts of Asia, likewise, than it had ever been within the memory of man. There was this difference, however, that the symptoms supervening on the occurrence of this accident were not accompanied by the Apulian nervous disorder, which, as has been shown in the foregoing pages, had its origin rather in the melancholic temperament of the inhabitants of the south of Italy, than in the nature of the tarantula poison itself. This poison is therefore doubtless to be considered only as a remote cause of the complaint, which, but for that temperament, would be inadequate to its production. The Persians employed a very rough means of counteracting the bad consequences of a poison of this sort. They drenched the wounded person with milk, and then, by violent rotatory motion in a suspended box, compelled him to vomit.‡

SECT. 6.—DECREASE.

The Dancing Mania, arising from the tarantula bite, continued, with all

* Idem, pp. 256, 257, 258.

† Idem, p. 258.

‡ *Adam Olearius*. Vermehrte Moscovitische und Persianische Reisebeschreibung. Travels in Muscovy and Persia, Schleswig, 1663, fol, Book IV, p. 496.

those additions of self-deception, and of the dissimulation which is such a constant attendant on nervous disorders of this kind, through the whole course of the seventeenth century. It was indeed gradually on the decline, but up to the termination of this period, showed such extraordinary symptoms, that Baglivi, one of the best physicians of that time, thought he did a service to science by making them the subject of a dissertation.* He repeats all the observations of Ferdinando, and supports his own assertions by the experience of his father, a physician at Lecce, whose testimony, as an eye-witness, may be admitted as unexceptionable.†

The immediate consequence of the tarantula bite, the supervening nervous disorder, and the aberrations and fits of those who suffered from Hysteria, he describes in a masterly style, nor does he ever suffer his credulity to diminish the authenticity of his account, of which he has been unjustly accused by later writers.

Finally, Tarantism has declined more and more in modern times, and is now limited to single cases. How could it possibly have maintained itself unchanged in the eighteenth century, when all the links which connected it with the middle ages had long since been snapped asunder? Imposture ‡ grew more frequent, and

* *Georg. Baglivi*, Dissertatio VI. de Anatome, morsu et effectibus Tarantulæ (written in 1595). Opera omnia, Lugdun. 1710. 4to. p. 599.

† This physician once saw three patients, who were evidently suffering from a malignant fever, and whose illness was attributed by the by-standers to the bite of the tarantula, forced to dance by having music played to them. One of them died on the spot, and the two others very shortly after. Ch. 7. p. 616.

‡ Among the instances in which imposture successfully taxes popular credulity, perhaps there is none more remarkable at the present day than that afforded by the Psylli of Egypt, a country which furnishes another illustration of our author's remark at the commencement of the next chapter. This sect according to the testimony of modern writers, continues to exhibit the same strange spectacles as the ancient serpent-eaters of Cyrene, described by Strabo, 17 Dio. 51, c. 14. Lican, 9

wherever the disease still appeared in its genuine form, its chief cause, namely, a peculiar cast of melancholy, which formerly had been the temperament of thousands, was now possessed only occasionally by unfortunate individuals. It might therefore not unreasonably be maintained, that the Tarantism of modern times bears nearly the same relation to the original malady, as the St. Vitus's dance which still exists, and certainly has all along existed, bears in certain cases to the original dancing mania of the dancers of St. John.

To conclude. Tarantism, as a real disease, has been denied *in toto*, and stigmatized as an imposition, by most physicians and naturalists, who in this controversy have shown the narrowness of their views and their utter ignorance of history. In order to sup-

v. 894. 937. Herodot. 4. c. 173. Paus. 9. c. 28. Savary states that he witnessed a procession at Rosetta, where a band of these seeming madmen, with bare arms and wild demeanor, held enormous serpents in their hands which writhed round their bodies and endeavored to make their escape. These Psylli, grasping them by the neck, tore them with their teeth and ate them up alive, the blood streaming down from their polluted mouths. Others of the Psylli were striving to wrest their prey from them, so that it seemed a struggle among them who should devour a serpent. The populace followed them with amazement, and believed their performances to be miraculous. Accordingly they pass for persons inspired and possessed by a spirit who destroys the effect of the serpent.

Sonnini, though not so fortunate as to witness a public exhibition of such performances, yet gives the following interesting account of what he justly calls a remarkable specimen of the extravagance of man. After adverting to the superstitious origin of the sect, he goes on to say that a Saadi, or serpent-eater, came to his apartment accompanied by a priest of his sect. The priest carried in his bosom a large serpent of a dusky green and copper-color, which he was continually handling; and after having recited a prayer, he delivered it to the Saadi. The narrative proceeds:—"With a vigorous hand the Saadi seized the serpent, which twisted itself round his naked arm. He began to appear agitated; his countenance was discomposed; his eyes rolled; he uttered terrible cries, bit the animal in the head, and tore off a morsel, which we saw him chew and swallow. On this his agitation be-

port their opinion they have instituted some experiments, apparently favorable to it, but under circumstances altogether inapplicable, since, for the most part, they selected, as the subjects of them, none but healthy men, who were totally uninfluenced by a belief in this once so dreaded disease. From individual instances of fraud and dissimulation, such as are found in connection with most nervous affections without rendering their reality a matter of any doubt, they drew a too hasty conclusion respecting the general phenomenon, of which they appeared not to know that it had continued for nearly four hundred years, having originated in the remotest periods of the middle ages. The most learned and the most acute among these skeptics is Serao the Neapolitan.* His reasonings amount to this, that he considers the disease to be a very marked

came convulsive: his howlings were redoubled, his limbs writhed, his countenance assumed the features of madness, and his mouth extended by terrible grimaces, was all in a foam. Every now and then he devoured a fresh morsel of the reptile. Three men endeavored to hold him, but he dragged them all three round the chamber. His arms were thrown about with violence on all sides, and struck everything within their reach. Eager to avoid him, M. Forneti and I were obliged sometimes to cling to the wall, to let him pass and escape his blows. We could have wished the madman far away. At length the priest took the serpent from him, but his madness and convulsions did not cease immediately; he bit his hands and his fury continued. The priest then grasped him in his arms, passed his hand gently down his back, lifted him from the ground, and recited some prayers. By degrees his agitation diminished, and subsided into a state of complete lassitude, in which he remained a few moments.

"The Turks who were present at this ridiculous and disgusting ceremony were firmly persuaded of the reality of this religious fury; and it is very certain that, whether it were reality or imposture, it is impossible to see the transports of rage and madness exhibited in a more striking manner, or have before your eyes a man more calculated to inspire terror."—*Hunter's Translation of Sonnini's Travels*, 8vo. 1799.—*Transl. note.*

* *Franc. Serao*, della Tarantola o vero Falangio di Puglia. Napol. 1742.—See *Thom. Fasani*, De vita, muniis et scriptis *Franc. Serai*, etc. *Commentarius*. Neapol. 1784. 8vo. p. 76. et seq.

form of melancholia, and compares the effect of the tarantula bite upon it to stimulating, with spurs, a horse which is already running. The reality of that effect he thus admits, and therefore directly confirms what in appearance only he denies.* By shaking the already vacillating belief in this disorder he is said to have actually succeeded in rendering it less frequent, and in setting bounds to imposture; † but this no more disproves the reality of its existence, than the oft-repeated detection of imposition has been able, in modern times, to banish magnetic sleep from the circle of natural phenomena, though such detection has, on its side, rendered more rare the incontestable effects of animal magnetism. Other physicians and naturalists ‡ have delivered their

* *Thom. Fasani*, De vita, muniis et scriptis *Franc. Serai*, etc. Commentarius. p. 88.

† *Idem*, p. 89.

‡ *H. Mercurialis*, de Venenis et Morbis Venenosis (Venet. 1601, 4to. Lib. II. ch. 6. p. 39), repeats the silly tale, that those who were bitten continued, during their paroxysm, to be occupied with whatever they had been engaged in at the time they received the bite, and proves, by a fact which had been communicated to him, that already, in the sixteenth century, they were able to distinguish impostures from those who had been really bitten. *H. Cardani*, de Subtilitate, Libri XXI. Basil. 1560. 8vo. Lib. IX. p. 635. The baneful effect of the venom of the tarantula was obviated, not so much by music as by the great exertion used in dancing. Compare *J. Cas. Scaliger*. Exoteric. Exercit. Libri XV. de Subtilitate. Francof. 1612. 8vo. Ex. 185. p. 610.—*J. M. Fehr*, Anchora sacra vel Scorzoneræ. Jen. 1666. 8vo. p. 127. From *Alexander ab Alexandro*, and several later writers.—*Stalpart van der Wiel*, Observatt. rarior. Lugdun. Bat. 1687. 8vo. Cent. I. Obs. C. p. 424. According to *Kircher*.—*Rod. a. Castro*, Medicus politicus. Hamburg, 1614. 4to. Lib. IV. ch. 16. p. 275. According to *Matthioli*.—*D. Cirillo*, Some account of the Tarantula, Philosop. Trans. Vol. LX. 1770. describes Tarantism as a common imposture. So also does *J. A. Unzer*, the Physician, Vol. II. pp. 473. 640, vol. III. pp. 466. 526. 528. 529. 530. 533. 553; likewise *A. F. Büsching*, Eigene Gedanken und gesammelte Nachrichten von der Tarantel, welche zur gänzlichen Vertilgung des Vorurtheils von der Schädlichkeit ihres Bisses, und der Heilung desselben durch Musik, dienlich und hinlänglich sind. Observations and statements respecting the Tarantula, which suffice entirely to set aside the prejudice respecting the venom of its bite, as also

sentiments on Tarantism, but as they have not possessed an enlarged knowledge of its history, their views do not merit particular exposition. It is sufficient for the comprehension of every one, that we have presented the facts freed from all extraneous speculation.

CHAPTER III.

DANCING MANIA IN ABYSSINIA.

SECT. I.—TIGRETIER.

BOTH the St. Vitus's dance and Tarantism belonged to the ages in which they appeared. They could not have existed under the same latitude at any other epoch, for at no other period were the circumstances which prepared the way for them combined in a similar relation to each other and the mental as well as corporeal temperaments of nations, which

its cure by music. Berlin, 1772. 8vo. A very shallow criticism.—*P. Forest*, Observatt. et Curatt. medicinal. Libri 30, 31 et 32. Francof. 1509. fol. Ob. XII. p. 41. diligently compiled from his predecessors.—*Phil. Camerar.* Operæ horarum subcivivarum. Francof. 1658. 4to. Cent. II. cap. 81. p. 317.—*R. Mead*, a mechanical account of poisons: London, 1747. 8vo. p. 99, contends for the reality of Tarantism with *R. Boyle*, An essay of the great effects of even languid and unheeded motion, etc. London, 1685. ch. VI.—So also *J. F. Cartheuser*, Fundamenta pathologiæ et therapiæ. Francof. a. V. 1758. 8vo. Tom. I. p. 334. *Th. Willis* de morbis convulsivis. cap. VII. p. 492. Opp. Lugdun. 1681. 4to. According to *Gassendi*, *Ferdinando Kircher*, and others.—*L. Valetta*, de Phalangio Apulo opusculum. Neapol. 1706.—*Thom. Cornelio* (professor at Naples in the middle of the seventeenth century). Letter to *J. Dodington* concerning some observations made of persons pretending to be stung by Tarantulas. Phil. Transactions, No. 83. p. 4066. 1672, considers Tarantism to be St. Vitus's dance.—*Jos. Lanzoni*, de Venenis, cap. 57. p. 140. Opp. Lausann. 1738. 4to. Tom. I. mostly from *Baglivi*.—*J. Schenk*, a *Grafenberg*. Observatt. Medicar. Lib. VII. Obs. 122. p. 792. Tom. II. Ed. Francof. 1600. 8vo. was himself an eye-witness.—*Wolff*, *Senguerd*, Tractatus physicus de Tarantula. Lugd. Bat. 1668. 12mo.—*Herm. Grube*, De ictu Tarantulæ et vi musices in

depend on causes such as have been stated, are as little capable of renewal as the different stages of life in individuals. This gives so much the more importance to a disease but cursorily alluded to in the foregoing pages, which exists in Abyssinia, and which nearly resembles the original mania of the St. John's dancers, inasmuch as it exhibits a perfectly similar ecstasy, with the same violent effect on the nerves of motion. It occurs most frequently in the Tigrè country, being thence called *Tigretier*, and is probably the same malady which is called in the Æthiopian language *Asrarāgaza*.* On this subject we will introduce the testimony of Nathaniel Pearce,† an eye-witness, who resided nine years in Abyssinia. "The *Tigretier*," says he, "is more common among the women than among the men. It seizes the body as if with a violent fever, and from that turns to a lingering sickness, which reduces the patients to skeletons, and often kills them, if the relations cannot procure the proper remedy. During this sickness their speech is changed to a kind of stuttering, which no one can

understand but those afflicted with the same disorder. When the relations find the malady to be the real *tigretier*, they join together to defray the expenses of curing it; the first remedy they in general attempt, is to procure the assistance of a learned *Dofter*, who reads the Gospel of St. John* and drenches the patient with cold water daily for the space of seven days—an application that very often proves fatal. The most effectual cure, though far more expensive than the former, is as follows:—The relations hire, for a certain sum of money, a band of trumpeters, drummers, and fifers, and buy a quantity of liquor; then all the young men and women of the place assemble at the patient's house, to perform the following most extraordinary ceremony.

"I was once called in by a neighbor to see his wife, a very young woman, who had the misfortune to be afflicted with this disorder; and the man being an old acquaintance of mine, and always a close comrade in the camp, I went every day when at home, to see her, but I could not be of any service to her, though she never refused my medicines. At this time, I could not understand a word she said, although she talked very freely, nor could any of her relations understand her. She could not bear the sight of a book or a priest, for at the sight of either, she struggled and was apparently seized with acute agony, and a flood of tears, like blood mingled with water, would pour down her face from her eyes. She had lain three months in this lingering state, living upon so little that it seemed not enough to keep a human body alive; at last her husband agreed to employ the usual remedy, and, after preparing for the maintenance of the band, during the time it would take to effect the cure, he borrowed from

eius curatione conjecturæ physico-medicæ. Francof. 1679. 8vo.—*Athan. Kircher*, Musurgia universalis. Rom. 1650. fol. Tom. II. IX. ch. 4. p. 218.—*M. Köhler*, in den Svenska Vetenskaps Academiens Handlingar. 1758. p. 29. Transactions of the Swedish Academy of Sciences.—Berlin Collection for the Furtherance of the Science of Medicine. Vol. V. Pt. 1. p. 53. 1772.—*Burserii* Institutiones medic. pract. tom. III. p. 1. cap. 7. § 219. p. 159. ed. *Hecker*.—*J. S. Halle*, Gifthistorie. History of Poisons, Berlin, 1786. 8vo.—*Blumenbach*, Naturgeschichte, Natural History, p. 412.—*E. F. Leonhardt*, Diss. de Tarantismo, Berol. 1827. 8vo. and many others.

* This may, however, be considered merely as a conjecture, founded upon the following passage in *Ludolf's* Lexicon Æthiopic. Ed. 2da. Francof. 1699. fol. p. 142. *Asrarāgaza*, de vexatione quadam diabolica accipitur. Marc. i. 26. ix. 18. Luc. ix. 39. Græcus habet *σπαρτήρειν*, vellicare, discerpere. *Sed Æthiopes, teste Gregorio, pro morbo quodam accipiunt, quo quis perpetuo pedes agitare et quasi calcitrare cogitur.* Fortassis est Saltatio S. Viti, vulgo St. Veitstanz.

† The Life and Adventures of *Nathaniel Pearce*, written by himself, during a residence in Abyssinia, from the year 1810 to 1819. London, 1831. 8vo. Vol. I. ch. ix. p. 290.

* The Evangelist and *St. John* the Baptist have been at all times, and among all nations, confounded with each other, so that the relation of the latter to one and the same phenomenon in such different ages and climates is very probable.

all his neighbors their silver ornaments, and loaded her legs, arms, and neck with them.

"The evening that the band began to play, I seated myself close by her side as she lay upon the couch, and about two minutes after the trumpets had begun to sound, I observed her shoulders begin to move, and soon afterward her head and breast, and in less than a quarter of an hour she sat upon her couch. The wild look she had, though sometimes she smiled, made me draw off to a greater distance, being almost alarmed to see one nearly a skeleton move with such strength; her head, neck, shoulders, hands, and feet, all made a strong motion to the sound of the music, and in this manner she went on by degrees, until she stood up on her legs upon the floor.

Afterward she began to dance, and at times to jump about, and at last, as the music and noise of the singers increased, she often sprang three feet from the ground. When the music slackened, she would appear quite out of temper, but when it became louder, she would smile and be delighted. During this exercise, she never showed the least symptom of being tired, though the musicians were thoroughly exhausted; and when they stopped to refresh themselves by drinking and resting a little, she would discover signs of discontent.

"Next day, according to the custom in the cure of this disorder, she was taken into the market-place, where several jars of *maize* or *tsug* were set in order by the relations, to give drink to the musicians and dancers. When the crowd had assembled and the music was ready she was brought forth and began to dance and throw herself into the maddest postures imaginable, and in this manner she kept on the whole day. Toward evening she began to let fall her silver ornaments from her neck, arms, and legs, one at a time, so that in the course of three hours she was stripped of every article. A relation continually kept going after

her as she danced, to pick up the ornaments, and afterward delivered them to the owners from whom they were borrowed. As the sun went down, she made a start with such swiftness, that the fastest runner could not come up with her, and when at the distance of about two hundred yards, she dropped on a sudden, as if shot. Soon afterward, a young man, on coming up with her, fired a match-lock over her body, and struck her upon the back with the broad side of his large knife, and asked her name, to which she answered as when in her common senses—a sure proof of her being cured; for, during the time of this malady, those afflicted with it never answer to their Christian names. She was now taken up in a very weak condition and carried home, and a priest came and baptized her again in the name of the Father, Son, and Holy Ghost, which ceremony concluded her cure. Some are taken in this manner to the market-place for many days before they can be cured, and it sometimes happens that they cannot be cured at all. I have seen them in these fits dance with a *bruly*, or bottle of maize, upon their heads, without spilling the liquor, or letting the bottle fall, although they have put themselves into the most extravagant postures.

"I could not have ventured to write this from hearsay, nor could I conceive it possible, until I was obliged to put this remedy in practice upon my own wife,* who was seized with the same disorder, and then I was compelled to have a still nearer view of this strange disorder. I at first thought that a whip would be of some service, and one day attempted a few strokes when unnoticed by any person, we being by ourselves, and I having a strong suspicion that this ailment sprang from the weak minds of women, who were encouraged in it for the sake of the grandeur, rich dress, and music which accompany the cure. But how much was I sur-

* She was a native Greek.

prised, the moment I struck a light blow, thinking to do good, to find that she became like a corpse, and even the joints of her fingers became so stiff that I could not straighten them; indeed, I really thought that she was dead, and immediately made it known to the people in the house that she had fainted, but did not tell them the cause, upon which they immediately brought music, which I had for many days denied them, and which soon revived her; and I then left the house to her relations to cure her at my expense, in the manner I have before mentioned, though it took a much longer time to cure my wife than the woman I have just given an account of. One day I went privately, with a companion, to see my wife dance, and kept a short distance, as I was ashamed to go near the crowd. On looking steadfastly upon her, while dancing or jumping, more like a deer than a human being, I said that it certainly was not my wife; at which my companion burst into a fit of laughter, from which he could scarcely refrain all the way home. Men are sometimes afflicted with this disorder, but not frequently. Among the Amhara and Galla it is not so common."

Such is the account of Pearce, who is every way worthy of credit, and whose lively description renders the traditions of former times respecting the St. Vitus's dance and tarantism intelligible even to those who are skeptical respecting the existence of a morbid state of the mind and body of the kind described, because, in the present advanced state of civilization among the nations of Europe, opportunities for its development no longer occur. The credibility of this energetic, but by no means ambitious man, is not liable to the slightest suspicion, for, owing to his want of education, he had no knowledge of the phenomena in question, and his work evinces throughout his attractive and unprejudiced impartiality.

Comparison is the mother of observation, and may here elucidate one phenomenon by another—the past by

that which still exists. Oppression, insecurity, and the influence of a very rude priestcraft, are the powerful causes which operated on the Germans and Italians of the middle ages, as they now continue to operate on the Abyssinians of the present day. However these people may differ from us in their descent, their manners and their customs, the effects of the above-mentioned causes are the same in Africa as they were in Europe, for they operate on man himself independently of the particular locality in which he may be planted; and the condition of the Abyssinians of modern times is, in regard to superstition, a mirror of the condition of the European nations in the middle ages. Should this appear a bold assertion, it will be strengthened by the fact, that in Abyssinia, two examples of superstitions occur, which are completely in accordance with occurrences of the middle ages that took place contemporarily with the dancing mania. *The Abyssinians have their Christian flagellants, and there exists among them a belief in a Zoomorphism, which presents a lively image of the lycanthropy of the middle ages.* Their flagellants are called Zackarys. They are united into a separate Christian fraternity, and make their processions through the towns and villages with great noise and tumult, scourging themselves till they draw blood, and wounding themselves with knives.* They boast that they are descendants of St. George. It is precisely in Tigrè, the country of the Abyssinian dancing mania, where they are found in the greatest numbers, and where they have, in the neighborhood of Axum, a church of their own, dedicated to their patron saint, *Oun Arvel*. Here there is an ever-burning lamp, and they contrive to impress a belief that this is kept alight by supernatural means. They also here keep a holy water, which is said to

* Pearce, p. 289. Compare p. 34.—E. G. Förstemann, Die christlichen Geissler-gesellschaften. The Christian Societies of Flagellants. Halle, 1828. 8vo.

be a cure for those who are affected by the dancing mania.

The Abyssinian Zoomorphism is a no less important phenomenon, and shows itself in a manner quite peculiar. The blacksmiths and potters form, among the Abyssinians, a society or caste called in Tigre *Tebbi*, and in Amhara *Buda*, which is held in some degree of contempt, and excluded from the sacrament of the Lord's Supper, because it is believed that they can change themselves into hyænas and other beasts of prey, on which account they are feared by everybody, and regarded with horror. They artfully contrive to keep up this superstition, because by this separation they preserve a monopoly of their lucrative trades, and as in other respects they are good Christians (but few Jews or Mahomedans live among them), they seem to attach no great consequence to their excommunication. As a badge of distinction they wear a golden earring, which is frequently found in the ears of hyænas that are killed, without its having ever been discovered how they catch these animals, so as to decorate them with this strange ornament, and this removes, in the minds of the people, all doubt as to the supernatural powers of the smiths and potters.* To the Budas is also ascribed the gift of enchantment, especially that of the influence of the evil eye.† They nevertheless live unmolested, and are not condemned to the flames by finatical priests, as the lycanthropes were in the middle ages.

CHAPTER IV.

SYMPATHY.

IMITATION—compassion—sympathy, these are imperfect designations for a common bond of union among human

* Idem, loc. cit.

† Among the ancient Greeks *βασκῆσις*. This superstition is more or less developed among all the nations of the earth, and has not yet entirely disappeared from Europe.

beings—for an instinct which connects individuals with the general body, which embraces with equal force, reason and folly, good and evil, and diminishes the praise of virtue as well as the criminality of vice. In this impulse there are degrees, but no essential differences, from the first intellectual efforts of the infant mind, which are in a great measure based on imitation, to that morbid condition of the soul in which the sensible impression of a nervous malady fetters the mind, and finds its way, through the eye, directly to the diseased texture, as the electric shock is propagated by contact from body to body. To this instinct of imitation, when it exists in its highest degree, is united a loss of all power over the will, which occurs as soon as the impression on the senses has become firmly established, producing a condition like that of small animals when they are fascinated by the look of a serpent. By this mental bondage, morbid sympathy is clearly and definitely distinguished from all subordinate degrees of this instinct, however closely allied the imitation of a disorder may seem to be to that of a mere folly, of an absurd fashion, of an awkward habit in speech and manner, or even of a confusion of ideas. Even these latter imitations, however, directed as they are to foolish and pernicious objects, place the self-independence of the greater portion of mankind in a very doubtful light, and account for their union into a social whole. Still more nearly allied to morbid sympathy than the imitation of enticing folly, although often with a considerable admixture of the latter, is the diffusion of violent excitements, especially those of a religious or political character, which have so powerfully agitated the nations of ancient and modern times, and which may, after an incipient compliance,* pass into a total loss of power over the will, and an actual disease of the mind. Far be it from us to attempt to awaken all

* *Paracelsus*.

the various tones of this chord, whose vibrations reveal the profound secrets which lie hid in the inmost recesses of the soul. We might well want powers adequate to so vast an undertaking. Our business here is only with that morbid sympathy, by the aid of which the dancing mania of the middle ages grew into a real epidemic. In order to make this apparent by comparison, it may not be out of place, at the close of this inquiry, to introduce a few striking examples:—1. "At a cotton manufactory at Hodden Bridge, in Lancashire, a girl, on the fifteenth of February, 1787, put a mouse into the bosom of another girl, who had a great dread of mice. The girl was immediately thrown into a fit, and continued in it with the most violent convulsions, for twenty-four hours. On the following day, three more girls were seized in the same manner; and on the 17th, six more. By this time the alarm was so great, that the whole work, in which 200 or 300 were employed, was totally stopped, and an idea prevailed that a particular disease had been introduced by a bag of cotton opened in the house. On Sunday the 18th, Dr. St. Clare was sent for from Preston; before he arrived three more were seized, and during that night and the morning of the 19th, eleven more, making in all twenty-four. Of these, twenty-one were young women, two were girls of about ten years of age, and one man, who had been much fatigued with holding the girls. Three of the number lived about two miles from the place where the disorder first broke out, and three at another factory at Clitheroe, about five miles distant, which last and two more were infected entirely from report, not having seen the other patients, but, like them and the rest of the country, strongly impressed with the idea of the plague being caught from the cotton. The symptoms were anxiety, strangulation, and very strong convulsions; and these were so violent as to last without any intermission from a quarter of an

hour to twenty-four hours, and to require four or five persons to prevent the patients from tearing their hair and dashing their heads against the floor or walls. Dr. St. Clare had taken with him a portable electrical machine, and by electric shocks the patients were universally relieved without exception. As soon as the patients and the country were assured that the complaint was merely nervous, easily cured, and not introduced by the cotton, no fresh person was affected. To dissipate their apprehension still further, the best effects were obtained by causing them to take a cheerful glass and join in a dance. On Tuesday the 20th, they danced, and the next day were all at work, except two or three, who were much weakened by their fits."*

The occurrence here described is remarkable on this account, that there was no important predisposing cause for convulsions in these young women, unless we consider as such their miserable and confined life in the work-rooms of a spinning manufactory. It did not arise from enthusiasm nor is it stated that the patients had been the subjects of any other nervous disorders. In another perfectly analogous case, those attacked were all suffering from nervous complaints, which roused a morbid sympathy in them at the sight of a person seized with convulsions. This, together with the supervention of hysterical fits, may aptly enough be compared to Tarantism.

2. "A young woman of the lowest order, twenty-one years of age, and of a strong frame, came on the 13th of January, 1801, to visit a patient in the Charité hospital at Berlin, where she had herself been previously under treatment for an inflammation of the chest with tetanic spasms, and immediately on entering the ward, fell down

* Gentleman's Magazine, 1787, March, p. 268.—*F. B. Ostander*, Ueber die Entwicklungskrankheiten in den Blüthenjahren des weiblichen Geschlechts. On the disorders of young women, etc. Tübingen, 1820, Vol. I. p. 10.

in strong convulsions. At the sight of her violent contortions, six other female patients immediately became affected in the same way, and by degrees eight more were in like manner attacked with strong convulsions. All these patients were from sixteen to twenty-five years of age, and suffered without exception, one from spasms in the stomach, another from palsy, a third from lethargy, a fourth from fits with consciousness, a fifth from catalepsy, a sixth from syncope, etc. The convulsions, which alternated in various ways with tonic spasms, were accompanied by loss of sensibility, and were invariably preceded by languor with heavy sleep, which was followed by the fits in the course of a minute or two; and it is remarkable, that in all these patients their former nervous disorders, not excepting paralysis, disappeared, returning, however, after the subsequent removal of their new complaint. The treatment, during the course of which two of the nurses, who were young women, suffered similar attacks, was continued for four months. It was finally successful, and consisted principally in the administration of opium, at that time the favorite remedy." *

Now, every species of enthusiasm, every strong affection, every violent passion, may lead to convulsions—to mental disorders—to a concussion of the nerves, from the sensorium to the very finest extremities of the spinal chord. The whole world is full of examples of this afflicting state of turmoil, which, when the mind is carried away by the force of a sensual impression that destroys its freedom, is irresistibly propagated by imitation. Those who are thus infected do not spare even their own lives, but, as a hunted flock of sheep will follow their leader and rush over a precipice, so will whole hosts of enthusiasts, deluded by their infatuation, hurry on to a self-inflicted death. Such has ever

been the case, from the days of the Milesian virgins to the modern associations for self-destruction.* Of all enthusiastic infatuations, however, that of religion is the most fertile in disorders of the mind as well as of the body, and both spread with the greatest facility by sympathy. The history of the church furnishes innumerable proofs of this, but we need go no further than the most recent times.

3. In a methodist chapel at Redruth, a man, during divine service, cried out with a loud voice, "What shall I do to be saved?" at the same time manifesting the greatest uneasiness and solicitude respecting the condition of his soul. Some other members of the congregation, following his example, cried out in the same form of words, and seemed shortly after to suffer the most excruciating bodily pain. This strange occurrence was soon publicly known, and hundreds of people, who had come thither, either attracted by curiosity, or a desire, from other motives, to see the sufferers, fell into the same state. The chapel remained open for some days and nights, and from that point the new disorder spread itself, with the rapidity of lightning, over the neighboring towns of Camborne, Helston, Truro, Penryn, and Falmouth, as well as over the villages in the vicinity. While thus advancing, it decreased in some measure at the place where it had first appeared, and it confined itself throughout to the Methodist chapels. It was only by the words which have been mentioned that it was excited, and it seized none but people of the lowest education. Those who were attacked betrayed the greatest anguish, and fell into convulsions; others cried out, like persons possessed, that the Almighty would straightway pour out his wrath upon them, that the wailings of tormented

* This account is given by *Fritze. Hufeland's Journal der practischen Heilkunde*, Vol. XII. 1801. Part I. p. 110. *Hufeland's Journal of Practical Medicine*.

* Compare *J. G. Zimmermann, Ueber die Einsamkeit*. Liepsig, 1784. 8vo. Vol. II. ch. 6. p. 77. On Solitude.—*J. P. Falret, De l'hypocondrie et du suicide*. Paris, 1822. 8vo, and others.

spirits rang in their ears, and that they saw hell open to receive them. The clergy, when, in the course of their sermons, they perceived that persons were thus seized, earnestly exhorted them to confess their sins, and zealously endeavored to convince them that they were by nature enemies to Christ; that the anger of God had therefore fallen upon them; and that if death should surprise them in the midst of their sins, the eternal torments of hell would be their portion. The over-excited congregation upon this repeated their words, which naturally must have increased the fury of their convulsive attacks. When the discourse had produced its full effect, the preacher changed his subject; reminded those who were suffering of the power of the Saviour, as well as of the grace of God, and represented to them in glowing colors the joys of heaven. Upon this a remarkable reaction sooner or later took place. Those who were in convulsions felt themselves raised from the lowest depths of misery and despair to the most exalted bliss, and triumphantly shouted out that their bonds were loosed, their sins were forgiven, and that they were translated to the wonderful freedom of the children of God. In the mean time, their convulsions continued, and they remained, during this condition, so abstracted from every earthly thought, that they stayed two and sometimes three days and nights together in the chapels, agitated all the time by spasmodic movements, and taking neither repose nor nourishment. According to a moderate computation, 4000 people were, within a very short time, affected with this convulsive malady.

The course and symptoms of the attacks were in general as follows:—there came on at first a feeling of faintness, with rigor and a sense of weight at the pit of the stomach, soon after which, the patient cried out, as if in the agonies of death or the pains of labor. The convulsions then began, first showing themselves in the muscles of the eyelids, though

the eyes themselves were fixed and staring. The most frightful contortions of the countenance followed, and the convulsions now took their course downwards so that the muscles of the neck and trunk were affected, causing a sobbing respiration which was performed with great effort. Tremors and agitation ensued and the patients screamed out violently, and tossed their heads about from side to side. As the complaint increased, it seized the arms, and its victims beat their breasts, clasped their hands, and made all sorts of strange gestures. The observer who gives this account remarked that the lower extremities were in no instance affected. In some cases, exhaustion came on in a very few minutes, but the attack usually lasted much longer, and there were even cases in which it was known to continue for sixty or seventy hours. Many of those who happened to be seated when the attack commenced, bent their bodies rapidly backward and forward during its continuance, making a corresponding motion with their arms, like persons sawing wood. Others shouted aloud, leaped about, and threw their bodies into every possible posture, until they had exhausted their strength. Yawning took place at the commencement in all cases, but as the violence of the disorder increased, the circulation and respiration became accelerated, so that the countenance assumed a swollen and puffed appearance. When exhaustion came on, patients usually fainted, and remained in a stiff and motionless state until their recovery. The disorder completely resembled the St. Vitus's dance, but the fits sometimes went on to an extraordinarily violent extent, so that the author of the account once saw a woman, who was seized with these convulsions, resist the endeavors of four or five strong men to restrain her. Those patients who did not lose their consciousness were in general made more furious by every attempt to quiet them by

force, on which account they were in general suffered to continue unmolested until nature herself brought on exhaustion. Those affected complained, more or less, of debility after the attacks, and cases sometimes occurred in which they passed into other disorders: thus some fell into a state of melancholy, which, however, in consequence of their religious ecstasy, was distinguished by the absence of fear and despair; and in one patient inflammation of the brain is said to have taken place. No sex or age was exempt from this epidemic malady. Children five years old and octogenarians were alike affected by it, and even men of the most powerful frame were subject to its influence. Girls and young women, however, were its most frequent victims.*

4. For the last hundred years a nervous affection of a perfectly similar kind has existed in the Shetland Islands, which furnishes a striking example, perhaps the only one now existing, of the very lasting propagation by sympathy of this species of disorders. The origin of the malady was very insignificant. An epileptic woman had a fit in church, and whether it was that the minds of the congregation were excited by devotion, or that, being overcome at the sight of the strong convulsions, their sympathy was called forth, certain it is, that many adult women, and even children, some of whom were of the male sex, and not more than six years old, began to complain forthwith of palpitation, followed by faintness, which passed into a motionless and apparently cataleptic condition. These symptoms lasted more than an hour, and probably recurred frequently. In the course of time, however, this malady is said to have undergone a modification, such as it exhibits at the present day. Women whom it has attacked will suddenly fall down, toss their arms about, writhe their bodies into various shapes, move their heads

suddenly from side to side, and with eyes fixed and staring, utter the most dismal cries. If the fit happen on any occasion of public diversion, they will, as soon as it has ceased, mix with their companions, and continue their amusement as if nothing had happened. Paroxysms of this kind used to prevail most during the warm months of summer, and about fifty years ago there was scarcely a Sabbath in which they did not occur. Strong passions of the mind, induced by religious enthusiasm, are also exciting causes of these fits, but like all such false tokens of divine workings, they are easily encountered by producing in the patient a different frame of mind, and especially by exciting a sense of shame: thus those affected are under the control of any sensible preacher, who knows how to "administer to a mind diseased," and to expose the folly of voluntarily yielding to a sympathy so easily resisted, or of inviting such attacks by affectation. An intelligent and pious minister of Shetland informed the physician, who gives an account of this disorder as an eye-witness, that being considerably annoyed, on his first introduction into the country, by these paroxysms, whereby the devotions of the church were much impeded, he obviated their repetition by assuring his parishioners, that no treatment was more effectual than immersion in cold water: and as his kirk was fortunately contiguous to a fresh-water lake, he gave notice that attendants should be at hand, during divine service, to ensure the proper means of cure. The sequel need scarcely be told. The fear of being carried out of the church, and into the water, acted like a charm; not a single Naiad was made, and the worthy minister, for many years, had reason to boast of one of the best-regulated congregations in Shetland. As the physician above alluded to was attending divine service in the kirk of Baliasta, on the Isle of Unst, a female shriek, the indication of a convulsion fit, was heard; the minister, Mr. Ingram, of Fetlar,

* This statement is made by *J. Cornish*. See *Fothergill* and *Want's Medical and Physical Journal*, vol. xxxi. 1814. pp. 373-379.

very properly stopped his discourse, until the disturber was removed; and, after advising all those who thought they might be similarly affected, to leave the church, he gave out, in the mean time, a psalm. The congregation was thus preserved from further interruption; yet the effect of sympathy was not prevented, for as the narrator of the account was leaving the church, he saw several females writhing and tossing about their arms on the green grass, who durst not, for fear of a censure from the pulpit, exhibit themselves after this manner within the sacred walls of the kirk.*

In the production of this disorder, which no doubt still exists, fanaticism certainly had a smaller share than the irritable state of women out of health, who only needed excitement, no matter of what kind, to throw them into the prevailing nervous paroxysms. When, however, that powerful cause of nervous disorders takes the lead, we find far more remarkable symptoms developed, and it then depends on the mental condition of the people among whom they appear, whether, in their spread, they shall take a narrow or an extended range—whether, confined to some small knot of zealots, they are to vanish without a trace, or whether they are to attain even historical importance.

5. The appearance of the *Convulsionnaires* in France, whose inhabitants, from the greater mobility of their blood, have in general been the less liable to fanaticism, is, in this respect, instructive and worthy of attention. In the year 1727 there died, in the capital of that country, the Deacon Pâris, a zealous opposer of the Ultramontanists, division having arisen in the French church on account of the bull "Unigenitus." People made frequent visits to his tomb, in the cemetery of St. Medard, and four years afterward (in September, 1731), a rumor was spread, that miracles

took place there. Patients were seized with convulsions and tetanic spasms, rolled upon the ground like persons possessed, were thrown into violent contortions of their heads and limbs, and suffered the greatest oppression, accompanied by quickness and irregularity of pulse. This novel occurrence excited the greatest sensation all over Paris, and an immense concourse of people resorted daily to the above named cemetery, in order to see so wonderful a spectacle, which the Ultramontanists immediately interpreted as a work of Satan, while their opponents ascribed it to a divine influence. The disorder soon increased, until it produced, in nervous women, *clairvoyance* (*Schlafwachen*), a phenomenon till then unknown; for one female especially attracted attention, who blindfold, and, as it was believed, by means of the sense of smell, read every writing that was placed before her, and distinguished the characters of unknown persons. The very earth taken from the grave of the Deacon was soon thought to possess miraculous power. It was sent to numerous sick persons at a distance, whereby they were said to have been cured, and thus this nervous disorder spread far beyond the limits of the capital, so that at one time it was computed that there were more than eight hundred decided *Convulsionnaires*, who would hardly have increased so much in numbers, had not Louis XV. directed that the cemetery should be closed.*

The disorder itself assumed various forms, and augmented, by its attacks, the general excitement. Many persons, besides suffering from the convulsions, became the subjects of violent pain, which required the assistance of their brethren of the faith. On this account they, as well as those who afforded them aid, were called by the common title of *Secourists*.

* About this time the following couplet was circulated:—

"De par le Roi, defense à Dieu
De faire miracle dans ce lieu."

* *Samuel Hibbert*, Description of the Shetland Islands, comprising an account of their geology, scenery, antiquities, and superstitions. Edinburgh, 1822. 4to. p. 399.

The modes of relief adopted were remarkably in accordance with those which were administered to the St. John's dancers and the Tarantati, and they were in general very rough; for the sufferers were beaten and goaded in various parts of the body with stones, hammers, swords, clubs, etc., of which treatment the defenders of this extraordinary sect relate the most astonishing examples, in proof that severe pain is imperatively demanded by nature in this disorder, as an effectual counter-irritant. The Secourists used wooden clubs, in the same manner as paviours use their mallets, and it is stated that some Convulsionnaires have borne daily from six to eight thousand blows, thus inflicted, without danger.* One Secourist administered to a young woman, who was suffering under spasm of the stomach, the most violent blows on that part, not to mention other similar cases, which occurred everywhere in great numbers. Sometimes the patients bounded from the ground, impelled by the convulsions, like fish when out of water; and this was so frequently imitated at a later period, that the women and girls, when they expected such violent contortions, not wishing to appear indecent, put on gowns, made like sacks, closed at the feet. If they received any bruises by falling down, they were healed with earth from the grave of the uncanonized saint. They usually, however, showed great agility in this respect, and it is scarcely necessary to remark that the female sex especially was distinguished by all kinds of leaping, and almost inconceivable contortions of body. Some spun round on their

feet with incredible rapidity, as is related of the dervishes; others ran their heads against walls, or curved their bodies like rope-dancers, so that their heels touched their shoulders.

All this degenerated at length into decided insanity. A certain Convulsionnaire, at Vernon, who had formerly led rather a loose course of life, employed herself in confessing the other sex; in other places women of this sect were seen imposing exercises of penance on priests, during which these were compelled to kneel before them. Others played with children's rattles, or drew about small carts, and gave to these childish acts symbolical significations.* One Convulsionnaire even made believe to shave her chin, and gave religious instruction at the same time, in order to imitate Pâris, the worker of miracles, who during this operation, and while at table, was in the habit of preaching. Some had a board placed across their bodies, upon which a whole row of men stood; and as, in this unnatural state of mind, a kind of pleasure is derived from excruciating pain, some too were seen who caused their bosoms to be pinched with tongs, while others, with gowns closed at the feet, stood upon their heads, and remained in that position longer than would have been possible had they been in health. Pinault, the advocate, who belonged to this sect, barked like a dog some hours every day, and even this found imitation among the believers.

The insanity of the Convulsionnaires lasted, without interruption, until the year 1790, and during these fifty-nine years, called forth more lamentable phenomena than the enlightened spirits of the eighteenth century would be willing to allow. The grossest immorality found, in the secret

* This kind of assistance was called the "Grands Secours." *Boursier*, Mémoire Théologique sur ce qu'on appelle les Secours violens dans les Convulsions. Paris, 1788. 12 mo. Many Convulsionnaires were seized with illness in consequence of this singularly erroneous mode of cure. A Dominican friar died from the effects of it—though accidents of this kind were kept carefully concealed. See *Renault* (parish priest at Vaux, near Auxerre; obiit, 1796), *Le Secourisme détruit dans ses fondemens*, 1759, 12mo. and *Le Mystère d'Iniquité*, 1788. 8vo.

* *Arouet*, the father of *Voltaire*, visited, in Nantes, a celebrated Convulsionnaire, *Gabrielle Mollet*, whom he found occupied in pulling the bells off a child's coral, to designate the rejection of the unbelievers. Sometimes she jumped into the water, and barked like a dog. She died in 1748.

meetings of the believers, a sure sanctuary, and, in their bewildering devotional exercises, a convenient cloak. It was of no avail that, in the year 1762, the Grands Secours was forbidden by act of parliament; for thenceforth this work was carried on in secrecy, and with greater zeal than ever; it was in vain, too, that some physicians, and, among the rest, the austere, pious Hecquet,* and after him Lorry,† attributed the conduct of the Convulsionnaires to natural causes. Men of distinction among the upper classes, as, for instance, Montgeron the deputy, and Lambert an ecclesiastic (obt. 1813), stood forth as the defenders of this sect; and the numerous writings ‡ which were exchanged on the subject, served, by the importance which they thus attached to it, to give it stability. The revolution, finally, shook the structure of this pernicious mysticism. It was not, however, destroyed; for, even during the period of the greatest excitement, the secret meetings were still kept up; prophetic books, by Convulsionnaires of various denominations, have appeared even in the most recent times, and only a few years ago (in 1828) this once celebrated sect still existed, although without the convulsions and the extraordinarily rude aid of the brethren of the faith, which, amidst the boasted pre-eminence of French intellectual advancement, remind us most forcibly of the dark ages of the St. John's dancers.§

6. Similar fanatical sects exhibit

* *J. Phil. Hecquet* (obit 1737). *Le Naturalisme des Convulsions*. Soleure, 1733. 8vo.
† *De Melancholia et Morbis Melancholicis*. Paris, 1765. 2 vols. 8vo.

‡ Especially from 1784 to 1788.

§ See *Grégoire*, *Histoire des Sectes Religieuses*, tome ii. ch. 13. p. 127. Paris, 1828. 8vo. The following words of this meritorious author, on the mental state of his countrymen, are very well worthy of attention. "L'esprit public est dans un état de fluctuation persévérante; des âmes flétries par l'égoïsme n'ont que le caractère de la servitude; l'éducation vicieuse ne forme guère que des êtres dégradés; la religion est méconnue ou mal enseignée; la nation présente des symptômes alarmans de sa

among all nations* of ancient and modern times the same phenomena. An overstrained bigotry is, in itself, and considered in a medical point of view, a destructive irritation of the senses, which draws men away from the efficiency of mental freedom, and peculiarly favors the most injurious emotions. Sensual ebullitions, with strong convulsions of the nerves, appear sooner or later,† and insanity, suicidal disgust of life, and incurable nervous disorders,‡ are but too fre-

décépitude, et presage des malheurs dont on ne peut calculer l'étendue ni la durée." P. 161.

* "I had occasion to witness at Cairo another species of religious fanaticism. I heard one day, at a short distance from my residence, for several hours together, singing, or more properly crying, so uniform and fatiguing, that I inquired the cause of this singularity. I was told that it was some dervise or monk, who repeated, while *dancing* on his heels, the name of Allah, till, completely exhausted, he sank down insensible. These unhappy visionaries, in fact, often expire at the end of this holy *dance*; and the cries of the one whom I heard, having commenced in the afternoon, and continued during the whole of the night, and part of the following morning, I doubt not that his pious enthusiasm cost him his life."—*Recollections of Egypt, by the Baroness Von Minutoli*. London, 1827.

In Arabia the same fanatical zeal exists, as we find from the following passage of an anonymous history of the Wahabis, published in Paris, in 1810: "La prière la plus méritoire consiste à crier le nom de Dieu, pendant des heures entières, et le plus saint est celui qui répète ce nom le plus long temps et le plus vite. Rien de plus curieux que le spectacle des Schekhs, qui, dans les fêtes publiques, s'essayaient à l'envi, et hurlent le nom d'Allah d'une manière effrayante. La plupart enroues sont forcés de se taire, et abandonnent la palme au saint à forte poitrine, qui, pour jouir de sa victoire, s'efforce et jette encore quelque cris devant ses rivaux réduits au silence. Epuise de fatigue, baigne de sueur, il tombe enfin au milieu du peuple dévot, qui s'empresse à le relever et le porte en triomphe. Les principales mosquées retentissent, tous les Vendredis, des cris dictes par cette singulière emulation. Le Schekh, que ses pionsons ont sanctifiée, conserve son odeur de sainteté par des extases et des transports, souvent dangereux pour les Chrétiens que le hazard en rend temoins malgré eux."—*Transl. note*.

† For examples see *Osiander*, *Entwickelungskrankheiten*. Loc. cit. p. 45.

‡ Among 108 cases of insanity, *Perfect* mentions eleven of mania and methodistical en-

quently the consequences of a perverse, and, indeed, hypocritical zeal, which has ever prevailed, as well in the assemblies of the Mænades and Corybantes of antiquity, as under the semblance of religion among the Christians and Mahomedans.

There are some denominations of English Methodists which surpass, if possible, the French Convulsionnaires; and we may here mention, in particular, the Jumpers, among whom it is still more difficult, than in the example given above, to draw the line between religious ecstasy and a perfect disorder of the nerves; sympathy, however, operates perhaps more perniciously on them than on other fanatical assemblies. The sect of Jumpers was founded in the year 1760, in the county of Cornwall, by two fanatics,* who were, even at that time, able to collect together a considerable party. Their general doctrine is that of the Methodists, and claims our consideration here, only in so far as it enjoins them, during their devotional exercises, to fall into convulsions, which they are able to effect in the strangest manner imaginable. By the use of certain unmeaning words, they work themselves up into a state of religious frenzy, in which they seem to have scarcely any control over their senses. They then begin to jump with strange gestures, repeating this exercise with all their might, until they are exhausted, so that it not unfrequently happens that women, who, like the Mænades, practice these religious exercises, are carried away from the midst of them in a state of syncope, while the remaining members of the congregations, for miles together, on their way home, terrify those whom they meet by the sight of such demoniacal ravings. There are never more than a few ecstatics, who, by their example, excite the rest to jump, and these are followed by the greatest part of the

enthusiasm, in nine of which suicide was committed. Annals of Insanity. London, 1808. 8vo.

* Harris Rowland and William Williams.

meeting, so that these assemblages of the Jumpers resemble, for hours together, the wildest orgies, rather than congregations met for Christian edification.*

In the United States of North America, communities of Methodists have existed for the last sixty years. The reports of credible witnesses of their assemblages for divine service in the open air (camp meetings),† to which many thousands flock from great distances,‡ surpass, indeed, all belief; for not only do they there repeat all the insane acts of the French Convulsionnaires and of the English Jumpers, but the disorder of their minds and of their nerves attains, at these meetings, a still greater height. Women have been seen to miscarry while suffering under the state of ecstasy and violent spasms into which they are thrown, and others have publicly stripped themselves and jumped into the rivers. They have swooned away§ by hundreds, worn out with ravings and fits; and of the Barkers, who appeared among the Convulsionnaires only here and there, in single cases of complete aberration of intellect, whole bands are seen running on all fours, and growling|| as if they wished to indicate, even by their out-

* John Evans, Sketch of the Denominations of the Christian World. 13th edition. London, 1814. 12mo. p. 236.—See Grégoire, loc. cit. tome iv. chap. xiii. p. 483.

† Mrs. Trollope's Domestic Manners of the Americans. A Revival, pp. 108—112. Shaking Quakers, pp. 195, 196. Camp Meeting, p. 233. London, 2 vols. 1832.—Transl. note.

‡ In Kentucky, assemblies of from ten to twelve thousand have frequently taken place. Virginia, North Carolina, Tennessee, and New York, are also the theaters of these meetings.—Grégoire, tome iv. p. 496.

§ At one of these camp-meetings a traveler saw above eight hundred persons faint away. Idem. He nowhere met with more frequent instances of suicide in consequence of Demomania, than in North America.

|| Idem, p. 498. These are the Barkers. Numerous other convulsive Methodical sects abound in North America. The Shakers, who are inimical to marriage, would also have been mentioned, were not their contortions much less violent than those of the Jumpers.—See Grégoire, tome v. p. 195. Evans, p. 267.

ward form, the shocking degradation of their human nature. At these camp-meetings the children are witnesses of this mad infatuation, and as their weak nerves are, with the greatest facility, affected by sympathy, they, together with their parents, fall into violent fits, though they know nothing of their import, and many of them remain for life some severe nervous disorder, which, having arisen from fright

and excessive excitement, will not afterward yield to any medical treatment.*

But enough of these extravagances, which, even in our own days, embitter the lives of so many thousands, and exhibit to the world, in the nineteenth century, the same terrific form of mental disturbance as the St. Vitus's dance once did to the benighted nations of the middle ages.

APPENDIX.

I.

Petri de Herentals, Prioris Floreffiensis Vita Gregorii XI., in Stephan. Baluzii Vitæ Papparum Avenionensium. T. I. Paris, 1693. 4to. p. 483.

Ejus tempore, videlicet A. D. MCCCLXXV., mira secta tam viro- rum quam mulierum venit Aquisgrani de partibus Alamanniæ, et ascendit usque Hanoniam seu Franciam, cujus talis fuit conditio. Nam homines utriusque sexus illudebantur a dæmonio, taliter quod tam in domibus quam in plateis et in Ecclesiis se invicem manibus tenentes chorizabant et in altum saltabant, ac quædam nomina dæmoniorum nominabant, videlicet *Friskes* et similia, nullam cognitionem in hujusmodi chorizatione nec verecundiam sui propter astantes populos habentes. Et in fine hujus chorizationis in tantum circa pectoralia torquebantur, quod nisi mappulis lineis a suis amicis per medium ventris fortiter stringerentur, quasi furiose clamabant se mori. Hi vero in Leodio per conjurationes sumptas de illis quæ in catechismo ante baptismum fiunt, a dæmonio liberabantur, et sanati dicebant, quod videbatur eis *quod in hora hujus chorizationis erant in fluvio sanguinis, et propterea sic in altum saltabant.* Vulgus autem apud Leodium dicebat quod

hujusmodi plaga populo contigisset eo quod populus male baptizatus erat, maxime a Presbyteribus suas tenentibus concubinas. Et propter hoc proposuerat vulgus insurgere in clerum, eos occidendo et bona eorum diripiendo, nisi Deus de remedio providisset per conjurationes prædictas. Quo viso cessavit tempestas vulgi taliter quod clerus multo plus a populo fuit honoratus. De ista autem chorizatione seu secta talia extant rigmata :

Oritur in seculo nova quædam secta
In gestis aut in speculo visa plus nec lecta.
Populus tripudiat nimium saltando.
Se unus alteri sociat leviter clamando.
Frisch friskes cum gaudio clamat uterque sexus
Cunctus manutergio et baculo connexus.
Capite fert pelleum desuper sertum.
Cernit Mariæ filium et calum apertum.
Deorsum prosternitur. Dudum fit ululatus.
Calcato ventre cernitur statim liberatus.
Vagatur loca varia pompose vivendo.
Mendicat necessaria propriis parcendo.

* See *Perrin du Lac*, Voyage dans les deux Louisianes. Paris, 1805. 8vo. chap. ix. pp. 64, 65, chap. xvii. pp. 128, 129.—*Michaud*, Voyage à l'ouest des Monts Alleghans. Paris, 1804. 8vo. p. 212.—*John Melish*, Travels in the United States of America. Philadelphia, 1812. 8vo. vol. i. p. 26.—*Lambert*, Travels through Canada and the United States. London, 1810, 8vo. vol. iii. p. 44.—*John Howison*, Sketches of Upper Canada. Edinburgh, 1822. 8vo. p. 150.—*Edward Allen Talbot*, Cinq Années de Résidence au Canada. Paris, 1825. 8vo. tome ii. p. 147.

Spernit videre rubea et personam flentem.
 Ad fidei contraria erigit hic gens mentem.
 Noctis sub umbraculo ista perpetravit.
 Cum naturali baculo subtus se calcavit.
 Clerum habet odio. Non curat sacramenta.
 Post sunt Leodio remedia inventa,
 Hanc nam fraudem qua suggestit sathan est
 convictus.
 Conjuratus evanescit. Hinc sit Christus
 benedictus.

II.

Jo. Pistorii Rerum familiarumque Belgicarum Chronicon magnum. Francof. 1654. fol. p. 319. De chorisantibus.

Item Anno. Dn. MCCCLXXIV. tempore pontificatus venerabilis Domini Joannis de Arckel Episcopi Leodiensis, in mense Julio in crastino divisionis Apostolorum visi sunt dansatores scilicet chorisantes, qui postea venerunt Trajectum, Leodium, Tungrim et alia loca istarum partium in mense Septembri. Et cœpit hæc *dæmoniaca pestis* vexare in dictis locis et circumvicinis masculos et fœminas maxime pauperes et levis opinionis ad magnum omnium terrorem; pauci clericorum vel divitum sunt vexati. Serta in capitibus gestabant, circa ventrem mappa cum baculo se stringebant circa umbilicum, ubi post saltationem cadentes nimium torquebantur, et ne creparentur pedibus conculcabantur, vel contra creporem cum baculo ad mappam duriter se ligabant, vel cum pugno se trudi faciebant, rostra calceorum aliqui clamabant se abhorre, unde in Leodio fieri tunc vetabantur. Ecclesias chorisando occupabant, et crescebant numero de mense Septembri et Octobri, processiones fiebant ubique, litanie et missæ speciales. Leodii apud Sanctam crucem scholaris servitor in vesperis dedicationis, cœpit ludere cum thuribulo, et post vesperas fortiter saltare. Evocatus a pluribus, ut diceret Pater noster, noluit, et Credo respondit in diabolium. Quod videns capellanus, allata stola conjuravit eum per exorcismum baptizandorum, et statim dixit; Ecce inquit, scholaris recedit

cum parva toga et calceis rostratis. Dic, tunc inquit, Pater noster et Credo. At ille utrumque dixit perfecte et curatus est. Apud Harstallium uno mane ante omnium Sanctorum, multi eorum ibi congregati consilium habuerunt, ut pariter venientes omnes canonicos, presbyteres et clericos Leodienses occiderent. Canonicus quidam parvæ mensæ minister Simon in claustrum Leodiensi apud capellam Beatae virginis, in Deo confortatus, scalam projecit in collum unius, dicens Evangelium: In principio erat verbum, super caput ejus, et per hoc fuit liberatus, et pro miraculo statim fuit pulsatum. Apud S. Bartolomæum Leodii, præsentibus multis, cuidam alii exorcisanti respondit dæmon: Ego exibo libenter. Expecta, inquit presbyter, volo tibi loqui. Et postquam aliquos alios curasset, dixit illi, loquere tu personaliter et responde mihi. Tum solus respondit dæmon: Nos eramus duo, sed socius meus nequior me, ante me exivit, habui tot pati in hoc corpore, si essem extra, nunquam intrarem in corpus Christianum. Cui presbyter: Quare intrasti corpora talium personarum? Respondit: Clerici et presbyteres dicunt tot pulchra verba et tot orationes, ut non possemus intrare corpora ipsorum. Si adhuc fuisset expectatum per quindenam vel mensem, nos intrassemus corpora divitum, et postea principum, et sic per eos destruxissemus clericum. Et hæc fuerunt ibi a multis audita et postea a multis narrata. Hæc pestis intra annum satis invaluit, sed postea per tres aut quatuor annos omnino cessavit.

III.*

Die Limburger Chronik, herausgegeben von C. D. Vogel. Marburg, 1828, 8vo. s. 71.

Anno 1374 zu mitten im Sommer, da erhuh sich ein wunderlich Ding

* The substance of Nos. III. and IV. having been embodied in the text, it seems only necessary to insert here the original old German, which is couched in language too coarse to admit of translation.—*Transl. note.*

auff Erdreich, und sonderlich in Teutschen Landen, auff dem Rhein und auff der Mosel, also dass Leute anhuben zu tanzten und zu rasen, und stunden je zwey gegen ein, und tanzeten auff einer Stätte einen halben Tag, und in dem Tantz da fielen sie etwan oft nieder, und liessen sich mit Füssen treten auff ihren Leib. Davon nahmen sie sich an, dass sie genesen wären. Und lieffen von einer Stadt zu der andern, und von einer Kirchen zu der andern, und huben Geld auff von den Leuten, wo es ihnen mocht geworden. Und wurd des Dings also viel, dass man zu Cölln in der Stadt mehr dann fünff hundert Tántzer fand. Und fand man, dass es eine Ketzerey war, und geschah um Golds willen, das ihr ein Theil Frau und Mann in Unkeuschheit mochten kommen, und die vollbringen. Und fand man da zu Cölln mehr dann hundert Frauen und Dienstmägde, die nicht eheliche Männer hatten. Die wurden alle in der Tántzerey Kinder-tragend, und wann dass sie tanzeten, so bunden und knebelten sie sich hart um den Leib, dass sie desto geringer wären. Hierauff sprachen ein Theils Meister, sonderlich der guten Artzt, das ein Theil wurden tanzend, die von heisser Natur wären, und von andern gebrechlichen natürlichen Sachen. Dann deren war wenig, denen das geschah. Die Meister von der heiligen Schrift, die beschwohren der Tántzer ein Theil, die meynten, dass sie besessen wären von dem bösen Geist. Also nahm es ein betrogen End, und währete wohl sechszehn Wochen in diesen Landen oder in der Mass. Auch nahmen die vorgenannten Tántzer Mann und Frauen sich an, dass sie kein roth sehen mochten. Und war ein eitel Teuscherey, und ist verbottschafft gewesen an Christum nach meinem Bedünken.

IV.

Die Chronica van der hilliger Stat van Coellen. A.D. MCCCLXXIV. fol. 277. Coellen, 1499. fol.

In dem seluen iair stonde eyne groisse kranckheit vp vnder den mynschen, ind was doch niet vill me geseyen dese selue kranckheit vur off nae ind quam van natuerlichen ursachen as die meyster schrijuen, ind noemen Sij maniam, dat is raserie off unsynlichkeit. Ind vill lude beyde man ind frauen junck ind alt hadden die kranckheit. Ind gyngen vyss huys ind hoff, dat deden ouch junge meyde, die verliessen yr alderen, vrunde ind maege ind lantschaff. Disse vurs mynschen zo etzlichen tzijden as Sij die kranckheit anstiesse, so hadden Sij eyne wonderlich bewegung yre lychamen. Sij gauen vyss kryschende vnd grusame stymme, ind mit dem wurpen Sij sich haestlich up die erden, vnd gyngen liggen up yren rugge, ind beyde man ind vrouwen moist men vmb yren buych ind vmp lenden gurdelen vnd kneuelen mit twelen vnd mit starcken breyden benden, asso stijff vnd harte als men mochte.

Item asso gegurt mit den twelen dantzten Sij in kyrchen ind in clusen ind vp allen gewijeden steden. As Sij dantzten, so sprungen Sij allit vp ind rieffen, *Here sent Johan, so so, vrisch ind vro here sent Johan.*

Item die ghene die die kranckheit hadden wurden gemeynlichen gesunt bynnen. VV. dagen. Zom lesten geschiede vill bouerie vnd droch dae mit. Eyndeyll naemen sich an dat Sij kranck weren. vp dat Sij mochten gelt dae durch bedelen. Die anderen vinsden sich kranck vp dat Sij mochten vnkuyssheit bedriuen mit den vrouwen. jnd gyngen durch alle lant ind dreuen vill bouerie. Doch zo lesten brach idt vyss ind wurden verdreuen vyss den landen. Die selue dentzer quamen ouch zo Coellen tusschen tzwen vnser lieuen frauen missen Assumptionis ind Natiuitatis.

V.

In the third volume of the Edinburgh Medical and Surgical Journal, p. 434, there is an account of "some convulsive diseases in certain parts of Scotland," which is taken from Sir J. Sinclair's statistical account, and from which I have thought it illustrative of our author's subject to make some extracts; the first that is noticed is peculiar to a part of Forfarshire, and is called the leaping ague, which bears so close an analogy to the original St. Vitus's Dance, or to Tarantism, that it seems to want only the "foul fiend," or the dreaded bite, as a cause, and a Scotch reel or strathspey as a cure, to render the resemblance quite complete. "Those affected with it first complain of a pain in the head, or lower part of the back, to which succeed convulsive fits, or *fits of dancing*, at certain periods. During the paroxysm they have all the appearance of madness, distorting their bodies in various ways, and leaping and springing in a surprising manner, whence the disease has derived its vulgar name. Sometimes they run with astonishing velocity, and often over dangerous passes, to some place out of doors which they have fixed on in their own minds, or, perhaps, even mentioned to those in company with them, and then *drop down quite exhausted*. At other times, especially when confined to the house, they climb in the most singular manner. In cottages, for example, they leap from the floor to what is called the baulks, or those beams by which the rafters are joined together, springing from one to another with the agility of a cat, or whirling round one of them, with a motion resembling the fly of a jack. Cold bathing is found to be the most effectual remedy; but when the fit of dancing, leaping, or running comes on, *nothing tends so much to abate the violence of the disease, as allowing them free scope to exercise themselves, till nature be exhausted*. No mention is made of its being peculiar to any age, sex, or condition of

life, although I am informed by a gentleman from Brechin, that it is most common before puberty. In some families it seems to be hereditary; and I have heard of one, in which a horse was always kept ready saddled, to follow the young ladies belonging to it, when they were seized with a fit of running. It was first observed in the parish of Kenmuir, and has prevailed occasionally in that and the neighboring parishes, for about seventy years: but it is not now nearly so frequent as it was about thirty years ago. The history of this singular affection is still extremely imperfect: and it is only from some of the medical practitioners in that part of the country where it prevails, that a complete description can be expected."

Our author has already noticed the convulsive disease prevalent in the Shetland Islands, and has quoted Hibbert's account of it. The following, however, from a very valuable manuscript account of the Orkney and Shetland Islands, drawn up about 1774, by George Low, with notes, by Mr. Pennant, is given in the journal already cited, and will be read with interest. The facts were communicated to Mr. Low by the Rev. Wm. Archibald, parochial clergyman of Unst, the most northerly of the Shetlands.

"There is a most shocking distemper, which has of late years prevailed very much, especially among young women, and was hardly known thirty or forty years ago. About that period only one person was subject to it. The inhabitants gave it the name of convulsion fits; and, indeed, in appearance it something resembles epilepsy. In its first rise it began with a palpitation of the heart, of which they complained for a considerable time; it at length produced swooning fits, in which people seized with it would lie motionless upward of an hour. At length, as the distemper gathered strength, when any violent passion seized, or on a sudden surprise, they would all at once fall down, toss their arms about, with their

bodies, into many odd shapes, crying out all the while, most dismally, throwing their heads about from side to side, with their eyes fixed and staring. At first this distemper obtained, in a private way, with one female, but she being seized in a public way, at church, the disease was communicated to others; but, whether by the influence of *fear* or *sympathy*, is not easy to determine. However this was, our public assemblies especially at church, became greatly disturbed by their outcries. This distemper always prevails most violently during the summer time, in which season, for many years, we are hardly one sabbath free. In these few years past, it has not prevailed so extensively, and upon the whole, seems on the decline. One thing remarkable in this distemper is, that as soon as the fit is over, the persons affected with it are generally as lively and brisk as before; and if it happens at any of their public diversions, as soon as they revive, they mix with their companions, and continue their amusement as vigorously as if nothing had happened. Few men are troubled with this distemper, which seems more confined to women; but there are instances of its seizing men, and girls of six years of age. With respect to the nature of this disease, people who have made inquiry about it differ, but most imagine it hysterical; however, this seems not entirely the case, as men and children are subject to it; however, it is a new disease in Shetland, but whence imported, none can imagine.

"When the statistical account of this parish was published, this awful and afflicting disease was becoming daily less common. In the parishes of Aithsting, Sandsting, and Northmaven, in which it was once very frequent, it was now totally extinct. In the last of these the cure is said to have been effected by a very singular remedy, which, if true, and there seems no reason to doubt it, shows the influence of moral causes in removing, as well as inducing, convulsive disorders." The cure is attributed to

a rough fellow of a kirk officer, who tossed a woman in that state, with whom he had been frequently troubled, into a ditch of water. She was never known to have the disease afterward, and others dreaded the same treatment.

It, however, still prevails in some of the northern parishes, particularly in Delting, although, according to the description given of it, with some alteration in its symptoms.

"Convulsion fits of a very extraordinary kind seem peculiar to this country. The patient is first seized with something like fainting, and immediately after utters wild cries and shrieks, the sound of which, at whatever distance, immediately puts all who are subject to the disorder in the same situation. It most commonly attacks them when the church is crowded, and often interrupts the service in this and many other churches in the country. On a sacramental occasion, fifty or sixty are sometimes carried out of the church, and laid in the churchyard, where they struggle and roar with all their strength, for five or ten minutes, and then rise up without recollecting a single circumstance that happened to them, or being in the least hurt or fatigued with the violent exertions they had made during the fit. One observation occurs on this disorder, that, during the late scarce years it was very uncommon, and, during the two last years of plenty (1791), it has appeared more frequently.

"Similar instances of epidemical convulsions are already upon record, but the history of that which occurred in Anglesea, North Wales, is the most remarkable, as its progress was, in all probability, checked by the judicious precautions recommended by Dr. Haygarth.

"In 1796, on the estates of the Earl of Uxbridge and Holland Griffith, Esq., 23 females, from 10 to 25, and one boy, of about 17 years of age, who had all intercourse with each other, were seized with an unusual kind of convulsions, affecting only the upper extremities. It began with pain of

the head, and sometimes of the stomach and side, not very violent; after which there came on violent twitchings or convulsions of the upper extremities, continuing with little intermission, and causing the shoulders almost to meet by the exertion. In bed the disorder was not so violent: but, in some cases at least, it continued even during sleep. Their pulse was moderate, the body costive, and the general health not much impaired. In general they had a hiccough; and, when the convulsions were most violent, giddiness came on, with the loss of hearing and recollection. During their convalescence, and they all recovered, the least fright or sudden alarm brought on a slight paroxysm.

“Dr. Haygarth, who was consulted on the means of relieving these unfortunate people, successfully recommended the use of antispasmodics; that all girls and young women should be prevented from having any communication with persons affected with those convulsions; and that those who were ill should be kept separate as much as possible.”

The same paper from which the above extracts have been taken, quotes a remarkable instance in which religious enthusiasm was the exciting cause of a convulsive disease analogous to those already noticed. The account is given by the Rev. Dr. Meik, at great length. It appears that in January, 1742, about 90 persons in the parish of Cambuslang, in Lanarkshire, were induced to subscribe a petition to the minister, urging him to give them a weekly lecture, to which he readily assented. Nothing particular occurred at the first two lectures, but, at the third, to which the hearers had been very attentive, when the minister in his last prayer expressed himself thus, “Lord, who hath believed our report; and to whom is the arm of the Lord revealed?—where are the fruits of my poor labors among this people?” several persons in the congregation cried out publicly, and about fifty men and women came to the minister’s house, expressing

strong convictions of sin, and alarming fears of punishment. After this period, so many people from the neighborhood resorted to Cambuslang, that the minister thought himself obliged to provide them with daily sermons or exhortations, and actually did so for seven or eight months. The way in which the converts were affected, for it seems they were affected much in the same way, though in very different degrees, is thus described. “They were seized, all at once, commonly by something said in the sermons or prayers, with the most dreadful apprehensions concerning the state of their souls, insomuch that many of them could not abstain from crying out, in the most public and frightful manner, ‘bemoaning their lost and undone condition by nature; calling themselves enemies to God, and despisers of precious Christ; declaring that they were unworthy to live on the face of the earth; that they saw the mouth of hell open to receive them, and that they heard the shrieks of the damned;’ but the universal cry was, ‘What shall we do to be saved?’ The agony under which they labored was expressed, not only by words, but also by violent agitations of body; by clapping their hands and beating their breasts; by shaking and trembling; by faintings and convulsions; and sometimes by excessive bleeding at the nose. While they were in this distress, the minister often called out to them, not to stifle or smother their convictions, but to encourage them: and, after sermon was ended, he retired with them to the manse, and frequently spent the best part of the night with them in exhortations and prayers. Next day, before sermon began, they were brought out, and, having napkins tied round their heads, were placed all together on seats before the tents, where they remained sobbing, weeping, and often crying aloud, till the service was over. Some of those who fell under conviction were never converted; but most of those who fell under it were converted in a few days, and sometimes in

a few hours. In most cases their conversion was as sudden and unexpected as their conviction. They were raised all at once from the lowest depth of sorrow and distress, to the highest pitch of joy and happiness; crying out with triumph and exultation, 'that they had overcome the wicked one; that they had gotten hold of Christ, and would never let him go; that the black cloud which had hitherto concealed him from their view, was now dispelled; and that they saw him, with a pen in his hand, blotting out their sins.' Under these delightful impressions, some began to pray, and exhort publicly, and others desired the congregation to join with them in singing a particular psalm, which they said God had commanded them to sing. From the time of their conviction to their conversion, many had no appetite for food, or inclination to sleep, and all complained of their sufferings during that interval."

The following account, which closes the paper whence the above quotations have been extracted, is taken from an Inaugural Essay on Chorea Sancti Viti, by Felix Robertson of Tennessee, 8vo. Philadelph. 1805.

"The Chorea, which is more particularly the subject of this dissertation, made its appearance during the summer of 1803, in the neighborhood of Maryville (Tennessee), in the form of an epidemic. Previously to entering on its history, I think it necessary to premise a few cursory remarks on the mode of life of those among whom it originated, for some time before the appearance of the disease.

"I suppose there are but few individuals in the United States who have not at least heard of the unparalleled blaze of enthusiastic religion which burst forth in the western country, about the year 1800; but it is perhaps impossible to have a competent idea of its effects, without personal observation. This religious enthusiasm traveled like electricity, with astonishing velocity, and was felt, *almost instantaneously*, in every part of the states of Tennessee and Kentucky. It often

proved so powerful a stimulus, that every other entirely lost its effect, or was but feebly felt. Hence that general neglect of earthly things, which was observed, and the almost perpetual attendance at places of public worship. Their churches are, in general, small and every way uncomfortable; the concourse of people, on days of worship, particularly of extraordinary meetings, was very numerous, and hundreds who lived at too great a distance to return home every evening, came supplied with provisions, tents, etc., for their sustenance and accommodation, during the continuance of the meeting, which commonly lasted from three to five days. They, as well as many others, remained on the spot day and night, the whole or greater part of this time, worshiping their Maker almost incessantly. The outward expressions of their worship consisted chiefly in alternate crying, laughing, singing, and shouting, and, at the same time, performing that variety of gesticulation, which the muscular system is capable of producing. It was under these circumstances that some found themselves unable, by voluntary efforts, to suppress the contraction of their muscles; and, to their own astonishment, and the diversion of many of the spectators, they continued to act from necessity, the curious character which they had commenced from choice.

"The disease no sooner appeared, than it spread with rapidity through the medium of the principle of imitation; thus it was not uncommon for an affected person to communicate it to the greater part of a crowd, who, from curiosity or other motives, had collected around him. It is at this time in almost every part of Tennessee and Kentucky, and in various parts of Virginia, but is said not to be contagious (or readily communicated), as at its commencement. It attacks both sexes, and every constitution, but evidently more readily those who are enthusiasts in religion, such as those above described, and females; children of six years of age, and adults

of sixty, have been known to have it, but a great majority of those affected are from fifteen to twenty-five. The muscles generally affected are those of the trunk, particularly of the neck, sometimes those of the superior extremities, but very rarely, if ever, those of the inferior. The contractions are sudden and violent, such as are denominated convulsive, being sometimes so powerful, when in the muscles of the back, that the patient is thrown on the ground, where for some time his motions more resemble those of a live fish when thrown on land, than anything else to which I can compare them.

"This, however, does not often occur, and never, I believe, except at the commencement of the disease. The patients, in general, are capable of standing and walking, and many, after it has continued a short time, can attend to their business, provided it is not of a nature requiring much steadiness of body. They are incapable of conversing with any degree of satisfaction to themselves or company, being continually interrupted by those irregular contractions of their muscles, each causing a grunt, or forcible expiration; but the organs of speech do not appear to be affected, nor has it the least influence on the mind. They have no command over their actions by any effort of volition, nor does their lying in bed prevent them, but they always cease during sleep. This disease has remissions and exacerbations, which, however, observe no regularity in their occurrence or duration. During the intermission a paroxysm is often excited at the sight of a person affected, but more frequently by the common salute of shaking hands. The sensations of the patients in a paroxysm are generally agreeable, which the enthusiastic class often endeavor to express, by laughing, shouting, *dancing*, etc.

"Fatigue is almost always complained of after violent paroxysms, and sometimes a general soreness is experienced. The heart and arteries appear to be no further affected by

the disease, than what arises from the exercise of the body; nor does any change take place in any of the secretions or excretions. It has not proved mortal in a single instance within my knowledge, but becomes lighter by degrees, and finally disappears. In some cases, however, of long continuance, it is attended with some degree of melancholia, which seems to arise entirely from the patient's reflections, and not directly from the disease.

"The state of the atmosphere has no influence over it, as it rages with equal violence in summer and in winter; in moist and in dry air."

In the above examples, nervous disorders, bearing a strong resemblance to those of the middle ages, are shown to exist in an *epidemic* form, both in Europe and America, at the present time; but in these instances some general cause of mental excitement—and none is more powerful than religious enthusiasm—seems to have been requisite for their propagation. Their appearance, however, in *single cases*, is occasionally independent of any such origin, which leads to a belief, not without support in the experiments of modern physiologists, that they occasionally proceed from physical causes, and that it is therefore not necessary to consider them in all cases as the offspring of a disordered imagination.

A well-marked case of a disease approximating to the original Dancing Mania, is related by Mr. Kinder Wood, in the 7th volume of the *Medico-Chirurgical Transactions*, p. 237. The patient, a young married woman, is described to have suffered from headache and sickness, together with involuntary motions of the eyelids, and most extraordinary contortions of the trunk and extremities, for several days, when the more remarkable symptoms began to manifest themselves, which are thus recorded:—

"February 26. Slight motions of the limbs came on in bed. She arose at nine o'clock, after which they increased, and became unusually severe. She was hurled from side to side of

the couch-chair upon which she sat, for a considerable time, without intermission; was sometimes instantaneously and forcibly thrown upon her feet, when she jumped and stamped violently. She had headache: the eyelids were frequently affected, and she had often a sudden propensity to spring or leap upward. The affection ceased about eleven o'clock in the forenoon, the patient being very much fatigued; but it returned about noon, and a third time in the afternoon, when she was impelled into every corner of the room, and began to strike the furniture and doors violently with the hand, as she passed near them, the sound of which afforded her great satisfaction. The fourth attack was at night; was very violent, and ended with sickness and vomiting. She went to bed at half-past eleven. Her nights were invariably good. The last three attacks were more violent than the former ones, but they continued only half an hour each.

"February 27. The attack commenced in bed, and was violent, but of short duration. When she arose about ten, she had a second attack, continuing an hour, except an interval of five minutes. She now struck the furniture more violently and more repeatedly. Kneeling on one knee, with the hands upon the back, she often sprang up suddenly and struck the top of the room with the palm of the hand. To do this, she rose fifteen inches from the floor, so that the family were under the necessity of drawing all the nails and hooks from the ceiling. She frequently danced upon one leg, holding the other with the hand, and occasionally changing the legs. In the evening, the family observed the blows upon the furniture to be more continuous, and to assume the regular time and measure of a musical air. As a strain or series of strokes was concluded, she ended with a more violent stroke or a more violent spring or jump. Several of her friends also at this time noticed the regular measure of the strokes,

and the greater regularity the disease was assuming; the motions being evidently affected, or in some measure modified, by the strokes upon the surrounding bodies. She chiefly struck a small slender door, the top of a chest of drawers, the clock, a table, or a wooden screen placed near the door. The affection ceased about nine o'clock, when the patient went to bed.

"February 28. She arose very well at eight. At half-past nine the motions recommenced; they were now of a more pleasant nature; the involuntary actions, instead of possessing their former irregularity and violence, being changed into a measured step over the room, connected with an air, or series of strokes, and she beat upon the adjacent bodies as she passed them. In the commencement of the attack, the lips moved as if words were articulated, but no sound could be distinguished at this period. It was curious indeed to observe the patient at this time, moving around the room with all the vivacity of the country dance, or the graver step of the minuet, the arms frequently carried, not merely with ease, but with elegance. Occasionally all the steps were so directed as to place the foot constantly where the stone flags joined to form the floor, particularly when she looked downward. When she looked upward, there was an irresistible impulse to spring up to touch little spots or holes in the top of the ceiling; when she looked around, she had a similar propensity to dart the forefinger into little holes in the furniture, etc. One hole in the wooden screen received the point of the forefinger many hundred times, which was suddenly and involuntarily darted into it with an amazing rapidity and precision. There was one particular part of the wall to which she frequently danced, and there, placing herself with the back to it, stood two or three minutes. This by the family was called '*the measuring place.*'

"In the afternoon the motions re-

turned, and proceeded much as in the morning. At this time a person present, surprised at the manner in which she beat upon the doors, etc., and thinking he recognized the air, without further ceremony began to sing the tune; the moment this struck her ears, she turned suddenly to the man, and dancing directly up to him, continued doing so till he was out of breath. The man now ceased a short time, when commencing again, he continued till the attack stopped. The night before this, her father had mentioned his wish to procure a drum, associating this dance of his daughter with some ideas of music. The avidity with which she danced to the tune when sung as above stated, confirmed this wish, and accordingly a drum and fife were procured in the evening. After two hours of rest, the motions again reappeared, when the drum and fife began to play the air to which she had danced before, viz. the 'Protestant Boys,' a favorite popular air in this neighborhood. In whatever part of the room she happened to be, she immediately turned and danced up to the drum, and as close as possible to it, and there she danced till she missed the step, when the involuntary motions instantly ceased. The first time she missed the step in five minutes; but again rose, and danced to the drum two minutes and a half by her father's watch, when, missing the step, the motions instantly ceased. She rose a third time, and missing the step in half a minute, the motions immediately ceased. After this, the drum and fife commenced as the involuntary actions were coming on, and before she rose from her seat; and four times they completely checked the progress of the attack, so that she did not rise upon the floor to dance. At this period the affection ceased for the evening.

"March 1. She arose very well at half-past seven. Upon my visit this morning, the circumstances of the preceding afternoon being stated, it appeared clear to me that the attacks

had been shortened. Slow as I had seen the effects of medicine in the comparatively trifling disease of young females, I was very willing that the family should pursue the experiment, while the medical means were continued.

"As I wished to see the effect of the instrument over the disease, I was sent for at noon, when I found her dancing to the drum, which she continued to do for half an hour without missing a step, owing to the slowness of the movement. As I sat counting the pulse, which I found to be 120, in the short intervals of an attack, I noticed motions of the lips, previous to the commencement of the dance, and placing my ear near the mouth I distinguished a tune. After the attack, of which this was the beginning, she informed me, in answer to my inquiry, that there always was a tune, dwelling upon her mind, which at times becoming more pressing, irresistibly impelled her to commence the involuntary motions. The motions ceased at four o'clock.

"At half-past seven the motions commenced again, when I was sent for. There were two drummers present, and an unbraced drum was beaten till the other was braced. She danced regularly to the unbraced drum, but the moment the other commenced she instantly ceased. As missing the time stopped the affections, I wished the measure to be changed during the dance, which stopped the attack. It also ceased upon increasing the rapidity of the beat, till she could no longer keep time; and it was truly surprising to see the rapidity and violence of the muscular exertion, in order to keep time with the increasing movement of the instrument. Five times I saw her sit down the same evening, at the instant that she was unable to keep the measure; and in consequence of this I desired the drummers to beat one continued roll, instead of a regular movement. She arose and danced five minutes, when both drums beat a continued roll: the

motions instantly stopped, and the patient sat down. In a few minutes the motions commencing again, she was suffered to dance five minutes, when the drums again began to roll, the effect of which was instantaneous; the motions ceased, and the patient sat down. In a few minutes the same was repeated with the same effect. It appeared certain that the attacks could now be stopped in an instant, and I was desirous of arresting them entirely, and breaking the chain of irregular associations which constituted the disease. As the motions at this period always commenced in the fingers, and propagated themselves along the upper extremities to the trunk, I desired the drummers, when the patient arose to dance, to watch the commencement of the attack, and roll the drums before she arose from the chair. Six times successively the patient was hindered from rising, by attending to the commencement of the affection; and before leaving the house, I desired the family to attend

to the commencement of the attacks, and use the drum early.

“March 2. She arose at seven o'clock, and the motions commenced at ten; she danced twice before the drummer was prepared, after which she attempted to dance again four several times; but one roll of a well-braced drum hindered the patient from leaving her seat, after which the attacks did not recur. She was left weakly and fatigued by the disease, but with a good appetite. In the evening of this day an eruption appeared, particularly about the elbows, in diffused patches of a bright red color, which went off on the third day.”

Other cases might be adduced (see 23d vol. of the Edinburgh Medical and Surgical Journal, p. 261; 31st vol. of ditto, p. 295; 5th vol. of the Medico-Chirurgical Transactions, pp. 1 to 23, etc.), but as there is none more striking than this, they would unnecessarily swell this number of the Appendix, which has already extended to an undue length.

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Beacon Lights OF Science

THE DISEASES OF THE WILL

By TH. RIBOT

AUTHOR OF "THE DISEASES OF MEMORY."
Translated from the French by J. Fitzgerald, A. M.

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CHAPTER I.

INTRODUCTION.—THE QUESTION STATED.

DURING the last few years several authors have treated in detail certain departments of psychology according to the principle of evolution, and it has appeared to me that these questions might be discussed with advantage in the same spirit though in a different form, by studying the process of *dissolution*. I propose therefore in the present work to attempt such a study of the Will as I before made of the Memory; to investigate its anomalies, and from this research to draw some conclusions touching the normal state. In many respects the problem that confronts us here is more difficult than the former one: the term *will* denotes something more vague than the term *memory*. Whether we regard memory as a function, a property or a faculty, it is at all events a stable mode of being, a psychic situation that all may understand. The will on the other hand is resolvable into volitions, each one of which is a thing apart, an instable form of activity, a resultant varying according to the causes that produce it.

Besides this first difficulty there is another one that might seem greater

still, but this we shall have no hesitation in dismissing summarily. Is it possible to study the pathology of the will without touching upon the irresolvable problem of free will? I hold it to be possible, and even indispensable, to abstain from such discussion; nor is it timidity that imposes this abstention upon us, but simply method. Psychology, like all other experimental sciences, must strictly eschew all research into first causes, and to that class of studies does the problem of free will belong. One of the great services rendered to philosophy by Kant and his disciples consisted in proving that the problem of the freedom of the will resolves itself into the question whether we are able to place ourselves outside the series of effects and causes so as to make an absolute beginning. This power "which summons, suspends, or dismisses," as it has been defined by a contemporary writer who has studied it profoundly,* can be affirmed only on the condition that we enter the domain of metaphysics.

The task before us here is different. Experience both inward and outward is the one object of our research: its limits are our limits. We take volitions as facts, with their immediate causes, that is to

* Renouvier, "Essai de Critique Générale," 2d edition, I., 395-406.

say the motives which produce them, without inquiring whether these causes suppose causes *in infinitum*, or whether there is not some measure of spontaneity added to them. Hence the question presents itself in a form equally acceptable to the determinists and to their opponents, being consistent with either hypothesis. We expect furthermore to pursue our researches in such a manner that the absence of any sort of solution of the free will problem will not even be noticed.

I shall endeavor to show that in every voluntary act there are two distinct elements, namely the state of consciousness—the “I will”—which indicates a mental situation but which of itself possesses no efficiency; and a highly complex psychophysiological mechanism in which alone the power of acting or of inhibiting has its seat. As this general conclusion can only be reached as the result of particular conclusions furnished by pathology, I will for the time being abstain in this introduction from any systematic view of the subject, and will simply consider the will in its twofold mechanism of impulsion and inhibition, and in its source—the individual character—regardless of details that do not concern our subject.*

The fundamental principle governing the psychology of the will in its impulsive form both in the healthy and the morbid state, is that every state of consciousness always tends to express itself, to interpret itself by a movement, by an act. This principle is only a particular phase, special to psychology, of the fundamental law that reflex action is the sole type of all nerve action, of all life of relation. Properly speaking activity in an animal is not a beginning but an end, not a cause but a result, not a first appearance but a sequel. This point is of the highest importance, and it must not be lost sight of. It alone can explain the physiology and the pathology of the will, for this tendency of the state of consciousness to expend itself in a psychological or a physiological act whether conscious or unconscious, is the one simple fact to which are reducible all the combinations and all the complexities of the highest will activity.

The new-born babe, as Virchow defines it, “is but a spinal creature.” Its activity is purely reflex, manifested by such a mul-

tiplicity of movements that for a good while its education must consist in suppressing or in checking the greater part of them. This prodigality of reflex actions, which has its ground in anatomical relations, exhibits in all its simplicity the transformation of excitations into movements. These movements, whether they are conscious or whether they awaken only an inchoate consciousness, in neither case represent voluntary action: properly they do but express the activity of the species—that which has been acquired, organized, and fixed by heredity: but these are the material out of which the will shall be fashioned.

Desire marks a higher step in the progress from the reflex state to the voluntary. By desire we understand the more elementary forms of the affective life—the only ones that can exist prior to the birth of the intelligence. Physiologically these do not differ from reflex actions of a complex nature: psychologically they differ from the latter by the state of consciousness, often very intense, which accompanies them. Like as in reflex action, they tend directly and irresistibly to express themselves in acts. In the natural state, and so long as it is free from admixture, desire tends to satisfy itself immediately: such is its law imprinted in the organism. Children and savages are good instances. In the civilized adult desire is no longer in the natural state, being altered or curbed by education, habit or reflection. Often however it resumes its right; and history shows that in the case of despots, who in their own esteem and in that of others stand above all law, desire rules uncontrolled.

Pathology will show us that this form of activity grows as will power declines, and persists when the latter has disappeared. Nevertheless it marks a progress from the first period, inasmuch as it denotes a beginning of individuality. On the common ground of the activity which belongs to the species, desire limns in faint outline the individual character: it reflects the mode of reaction peculiar to an individual organism.

When a sufficient store of experiences exists to allow of the birth of the intelligence, there appears a new form of activity,—*ideomotor* activity it has been called, ideas, thoughts, being here the cause of movements. The term *ideomotor* has the further advantage that it points out the relationship between these movements and those of reflex action, of which the former are but a development.

* The reader will find in a recent work by Schneider, “Der Menschliche Wille vom Standpunkte der neueren Entwicklungstheorie” (Berlin, 1882), a good monograph on the will in its normal state, and from the point of view of evolution.

How can a thought produce a movement? This question is one that seriously embarrassed the old psychology, but it presents no difficulty when we look at the facts as they really are. It is now a truth currently accepted in cerebral physiology, that the anatomical basis of all our mental states comprises both motor and sensorial elements. I shall not dwell upon a question that has been treated fully in another place* and which would involve a digression. I would simply repeat that our sense perceptions, especially the important ones of sight and touch, involve as integral elements movements of the eye or of the members. And if movement is an essential element when we see an object actually, it must play the same part when we see an object ideally. Mental images and ideas, even abstract ideas, involve an anatomical substratum in which movements are represented in one way or another.

True, on studying the question more closely, it might be said that we must distinguish two kinds of motor elements, viz.: those which serve to constitute a state of consciousness, and those which serve to expend it—the former being intrinsic, the latter extrinsic. The idea of a ball, for instance, is the resultant of impressions made by surfaces, and of special muscular adjustments; but the latter are the result of muscular sensibility, and as such they are sensations of movement rather than movements proper—they are elements going to make up our idea of the object, rather than a mode of giving it expression.

Nevertheless this close relation established by physiology between ideas and movement enables us in some measure to see how the one produces the other. In reality, an idea does not produce a movement. Were an idea, as defined by the spiritualists,† to produce a play of the muscles, it were little short of a miracle. It is not the state of consciousness, as such, but the corresponding physiological state, which is transformed into an act. In short the relation is not between a psychic event and a movement, but between two states of the same kind—between two physiological states, two groups of nervous elements, the one sensitive, the other motor. So long as we persist in regarding consciousness as a cause, all is obscure; but when we look upon it as simply the accompaniment of a nervous proc-

ess, which alone is the essential element, all becomes clear, and factitious difficulties vanish.

This granted, we can roughly classify ideas in three groups, according as their tendency to transform themselves into acts is strong, moderate or weak and in a certain sense null.

1. The first group comprises intellectual states of high intensity: fixed ideas may be regarded as the type of these. They pass into act almost with the rapidity of reflex actions. These are ideas that "come home to us." The old psychology, affirming a fact of every day experience, used to say in its own language that the intelligence does not act upon the will save through the intermediation of the sensibility. This means that the nervous state corresponding to an idea is more readily translated into a movement, in proportion as it is accompanied by those other nervous states, whatever they may be, which correspond to feeling or sentiment. Nervous action is more energetic in proportion to the number of elements upon which it acts.

Most of the passions when they rise above the level of mere appetite, are to be referred to this group as principles of action. The whole difference is one of degree only, according as the affective elements predominate, or *vice versa*, in the complex thus formed.*

2. The second group is the most important for us. It represents rational activity—the will in the common acceptation of the word. Here the thought is followed by the act after longer or shorter deliberation. If we reflect we shall find that most of our actions are reducible to this type, allowance being made for the forms already mentioned, and for habits. Whether I rise to take the air at my window, or whether I enlist in the army with the purpose of becoming some day a general, the difference is only one of more and less; a highly complex volition like that last instance resolving itself into a series of simple volitions successively adapted to times and places. In this

* The relative independence of thought and feeling as causes of movement is clearly demonstrated by certain pathological cases. It may happen that the idea of a movement is of itself incapable of producing that movement: but let emotion be added and it is produced. A man that is paralyzed cannot by any effort of will move, say, his arm, yet it will be strongly agitated under the influence of an emotion caused by the arrival of a friend. In the case of softening of the spinal cord inducing paralysis an emotion, or a question addressed to the patient may give rise to more violent movements in the inferior members, upon which the will has no action.

* "Revue Philosophique," Oct., 1879.

† As opposed to "Materialists." It need hardly be said that the author has not in mind "Spiritists," or "Spirit Rappers."—TRANSLATOR.

group the tendency to act is neither instantaneous nor violent. The concomitant affective state is moderate. Many of the actions which constitute the ordinary course of our lives were at first accompanied by a feeling of pleasure, or curiosity and the like: now that feeling is weakened, still the connection between the idea and the act is fixed: when the idea comes up in the mind, the act follows.

3. With abstract ideas the tendency to movement is at a minimum. These ideas being representations of representations, pure schematisms, generalized concepts, the motor element is minimized in the same degree as the representative element. If we were to look upon all the forms of activity we have been considering as successive complications of simple reflex action, we might say that abstract ideas are a collateral ramification weakly attached to the main trunk, and which has developed in its own way. Their motor tendency is restricted to that inner speech, feeble as it is, which accompanies them, and to the awakening of some other state of consciousness. For just as in physiology the centrifugal period of a reflex action does not always end in a movement, but quite as often in the secretion of a gland or in some trophic action; so in psychology a state of consciousness does not always end in a movement, but in the summoning up of other states of consciousness, according to the well known mechanism of association.

The contrast so often noted between contemplative minds, who live among abstractions, and practical men is only the outward palpable expression of the psychological differences just mentioned. A few commonplace observations may be cited here, as the difference between knowing what is right and practicing it, between recognizing the absurdity of a creed and renouncing it, between condemning an unlawful passion and withstanding the same. All this is explained by the fact that the motor tendency of ideas, left to themselves, is exceedingly weak. We know not what are the anatomical and physiological conditions requisite for the production of an abstract idea, but we may without rashness affirm that once it becomes a motive to action other elements are added to it: this is the case with those who are "devoted to an idea." Men are governed by feeling and sentiment.

In the light of the foregoing remarks voluntary activity appears to us as a stage in

that progressive evolution which proceeds from simple reflex action, where the tendency to movement is irresistible, to the abstract idea, where the tendency to action is at the minimum. We are unable to determine precisely its beginning or its end, the transition from one form to another being almost imperceptible. Of set purpose and for the sake of clearness we have not examined the problem in its complexity: we have even eliminated one of the essential characteristic elements of will. Regarded as we have regarded it so far, will might be defined as a conscious act, more or less deliberate, having in view an end whether simple or complex, proximate or remote. It is thus that contemporary authors, as Maudsley and Lewes, understand it, when they define it to be *impulse by ideas*, or the *motor reaction of feelings and ideas*. Thus understood, volition would be simply permissive. But it is something very different. It is also a power of *arrestation*, or, to use the language of physiology, a power of *inhibition*.

For a psychology grounded only on inner observation this distinction between permitting and hindering is of little importance; but for a psychology that seeks to find in the physiological mechanism some explication of the operations of mind, and which regards reflex action as the type of all activity, it is of vital significance.

The currently received doctrine teaches that the will is a *fiat* which the muscles obey no one knows how. On this hypothesis it matters little whether the *fiat* commands a movement or an inhibition. But if with all contemporary physiologists we hold that reflex action is the type and the basis of all action whatever, and if consequently there is no occasion to ask why a state of consciousness is transformed into a movement—for that is the law—we have still to explain why it is not transformed. Unfortunately physiology is full of obscurity and indecision touching this point.

The simplest instance of the phenomenon of inhibition is seen in the suspension of the movements of the heart by excitation of the pneumogastric nerve. We know that the heart (independently of the intracardiac ganglia) is innervated by nerve filaments coming from the great sympathetic which accelerate its pulsations, and by filaments from the vagus nerve. Section of the latter increases the movements; excitation of its central terminus on the contrary suspends them for

a longer or shorter time. The vagus therefore is an inhibiting nerve, and inhibition is generally regarded as the result of interference. The reflex activity of the cardiac centers is retarded or suspended by excitations coming from the medulla. In other words, the motor action of the pneumogastric expends itself in the cardiac centers and produces an arrest of movement. This has no direct psychological significance, but here is something that concerns us more nearly:

It is a well known fact that the reflex excitability of the spinal cord becomes greater when it is withdrawn from the action of the brain. The state of decapitated animals gives striking evidence of this. But not to recur to those extreme cases, we know that reflex action is much more intense during sleep than in the waking state. To account for this some authors have held that there are in the brain centers of inhibition. Setschenow locates them in the optic thalami and in the region of the tubercula quadrigemina, his ground being the fact that when we stimulate by chemical or other means the parts named, we produce a depression of the reflex actions. Goltz locates the centers of inhibition in the brain proper.

These and other similar hypotheses * have been sharply criticized, and many physiologists hold simply that in the normal state excitations are distributed both to the brain taking an upward route and to the spinal cord by a transverse route; and that on the other hand in cases where the brain cannot play a part, the excitations now finding only one route open, the result is a sort of accumulation, the effect of which is an excessive reflex excitability. Ferrier † holds that in the frontal lobes are to be found controlling centers which are the essential factor of attention.

Not to go into further detail, it is seen that for explaining the mechanism of inhibition we have no clear and generally accepted theory such as we have with regard to reflex action. Some authors hold that inhibition results from two contrary tendencies clashing or destroying each other; others maintain the existence of inhibition centers (and even inhibiting nerves) capable of suppressing instead of re-enforcing a transmitted impulse; and

there are sundry other hypotheses, but it would be of no advantage to enumerate them.* In this state of ignorance, we must examine the question as best we may.

In all voluntary inhibition two things have to be considered: the mechanism that produces it—of this we have just spoken; and the state of consciousness that accompanies it: of this we have to speak now. In the first place there are cases where the inhibition needs no explanation—where the will incitation ceases of its own accord: for instance, when one throws aside a decidedly tedious book.

Other cases appear to be explained by one or other of the hypotheses mentioned. We voluntarily arrest laughter, yawning coughing and certain passionate movements, by putting in action, apparently, the antagonistic muscles.

In cases where as yet we know not how inhibition is produced, where the physiological mechanism is unknown, pure psychology may teach us something. Take the most commonplace instance—a fit of anger stayed by the will. Lest we exaggerate the power of the will, we would remark that such inhibition is far from being the rule. Some individuals appear to be utterly incapable of it. Others exercise it, but very unequally, their power of inhibition varying according to times and circumstances. Few men are at all times masters of themselves.

The first condition of the exercise of this power is time. If the incitation to anger be so violent as to pass immediately into action, that is the end of it. Whatever may be the excess of passion there is no help for it. But if the condition of time be filled; if the state of consciousness calls up antagonistic states, and if these are sufficiently stable, then there is inhibition. The new state of consciousness tends to suppress the other one, and by weakening the cause puts a check on the effects.

It is of supreme importance for the pathology of the will to investigate the physiological phenomenon that takes place in such cases. There is no doubt that the quantity of the nervous influx—whatever our opinion may be as to its nature—varies between individuals, and from one moment to another in the same person. Neither is there any doubt that, at a given moment, in any individual, the available quantity may be variably distributed. It

* For a full history of this question the reader may consult Eckhard, "Physiologie des Rückenmarks" in Hermann's "Physiologie," vol. II., part 2, p. 33 *seq.* He will there find an account of the experiments of Setschenow, Goltz, Schiff, Herzen, Cyon, and others, with their interpretations.

† "The Functions of the Brain," §§ 103, 104.

* See Wundt's "Mechanik der Nerven;" Lewes's "Physical Basis of Mind."

is clear that in the case of the mathematician making a computation and in that of a man gratifying a physical passion the quantity of nervous influx is not expended in the same way, and that one form of expenditure prevents the other, as the available capital cannot be employed at once for two purposes.

"We see," says a physiologist, "that the excitability of certain nerve centers is reduced by calling other nerve centers into action, if the excitations that reach the latter possess a certain intensity. If we consider the normal functioning of the nervous system, we find that there exists a necessary equilibrium between the different apparatus of this system. This equilibrium may be destroyed by the abnormal predominance of certain centers, which seem to divert to their own advantage too large a proportion of the nervous activity; as a consequence, the functioning of the other centers appears to be disturbed. . . . There are certain general laws that govern the distribution of the nervous activity at the different points in the system, as there are mechanical laws which govern the circulation of the blood in the vascular system: if any great perturbation occurs in an important vascular department the effect is necessarily felt at all other points in the system. These laws of hydrodynamics we can appreciate because the fluid in circulation is accessible to us, and because we know the properties of the vessels that contain it, the effects of elasticity, of muscular contraction, etc. But who knows the laws of the distribution of nervous activity, of the circulation of what has been called the nerve fluid? We recognize the effects of breaks in the equilibrium of nerve activity, but these are disturbances essentially variable, nor can they be reduced under any theory. We can only note their production, taking account of the conditions that accompany them."*

Applying these general considerations to our particular case, what do we find? The original state of consciousness (anger) has called forth antagonistic states which necessarily vary in different individuals—the idea of duty, the fear of God, the opinion of men, the law, disastrous consequences, etc. The result is the production of a second center of action, or in physiological language, a diversion of the nervous afflux, a weakening of the first state to the advantage of the second. Is this diversion sufficient to restore the equilibrium? The event alone can decide.

Still when the inhibition takes place, it is always only relative, and its only result is that the action is weaker. What remains of the original impulse expends

itself as best it can through half-restrained gestures, in perturbation of the viscera, through some artificial outlet, as for instance in the case of the soldier who when he was being shot to death, chewed a bullet so that he might not make any exclamation. Very few persons are so endowed by nature or so formed by habit as to be able to reduce their reflex actions to imperceptible movements.

This diversion of the nervous influx therefore is not a primordial fact, but a state of secondary formation, set up by means of an association at the expense of the state which it displaces.

We would observe that in addition to these two antagonistic centers of action there are other causes which tend to weaken directly the primitive impulse.

But we must examine the difficulty more closely, for though the coexistence of their two antagonistic states* suffices to produce indecision, incertitude, non-action, it is not sufficient to produce voluntary inhibition in the true sense of the phrase, "I will not." One condition more is needed, and this is found in an affective element of the highest importance, of which we have not yet spoken. The feelings and emotions are not all stimulants to action: many of them have a *depressive* effect. Of these terror may be regarded as the extreme type. In its highest degree, terror paralyzes. A man suddenly visited with a great affliction is incapable of any reaction, whether voluntary or reflex. The cerebral anæmia, the arrest of the heart's action—often producing death by syncope—the profuse perspiration with chilling of the skin, the relaxation of the sphincter muscles: all these prove the excitability of the muscular, vaso-motor, secretory and other centers to be for the time being suspended. The case is an extreme one, but it gives us a view of the subject as through a magnifying glass. Between terror and indifference we have all possible degrees of fear with the corresponding degrees of depression.

If from this maximum we descend to moderate fear, the depressive effect grows less, but without changing its character. How do we arrest the movements of anger in a child? By threats, by reprimands that is to say by producing a new state of consciousness of a depressing kind, capable of checking action. "An infant of three and a half months," says B. Perez

* Franck, "Dictionnaire Encyclopédique des Sciences Médicales," art. NERVEUX.

* Of course we do not separate them from their physiological conditions, which are the principal element.

"knows from one's looks, from the tone of one's voice, when he is reprimanded. He frowns, his lips quiver convulsively, he pouts for an instant, his eyes fill with tears, and he is ready to cry." The new state therefore tends to supplant the old not only by its own force, but also by the weakness it imposes on the whole physical structure.

If, in spite of repeated menaces there is no inhibition, the individual is hardly, if at all, capable of education in this respect. But if inhibition is produced the result is that, in virtue of a well known law, an association tends to be formed between the two states: the first calls forth the second—its corrective—and from habit inhibition becomes more and more easy and rapid. With those who are masters of themselves inhibition takes place with the certainty that always marks a fully developed habit. Of course temperament and character are of more importance than education.

Hence it is not matter of surprise that a storm of passion should give way before a passionless idea, before states of consciousness whose motor tendency is quite weak. The reason is that back of these lies an accumulated force, latent and unconscious, as we shall see.

To understand this paradox, we must study, not the educated adult person, who reflects, but the child. In the child—and the savage, the man of gross nature and incapable of education is comparable to a child—the tendency to act is immediate. The work of education consists precisely in awakening these antagonistic states. And by education we understand not only the training the child gets from others, but also that which he acquires by himself.

I do not consider it necessary to prove that all sentiments and feelings which produce inhibition, as fear or respect for persons, law, usage, fear of God, and the like, originally were and ever are depressive states which tend to diminish action.

In short, the phenomenon of inhibition may be accounted for, in a way sufficient for our purpose, by an analysis of the psychological conditions under which it occurs, whatever theory one may entertain as to its physiological mechanism. It were no doubt desirable to have clearer notions on this point, to have a fuller understanding of the *modus operandi* whereby two almost simultaneous excitations neutralize each other. Were this obscure question cleared up our conception of the will as a power of inhibition would be more precise, and perhaps it

would be different. But we must needs wait for this consummation. We shall again meet this difficult problem under other forms.

So far we have been considering voluntary activity under an exclusively analytical form, but this can give us no exact idea of it, nor exhibit it in its totality. It is neither a simple transformation of states of consciousness into movement, nor a mere power of inhibition: it is a reaction proper to the individual. We must dwell upon this point, for without it the pathology of the will is unintelligible.

The primary character of voluntary movements consists in their being *adapted*, but this character they have in common with the vast majority of physiological movements: the difference is only one of degree.

Apart from movements of the pathological order (convulsions, chorea, epilepsy, etc.), which occur in the form of a violent and irregular discharge, adaptation is found from the top to the bottom of the scale.

Ordinary reflex actions are reactions of the spinal cord adapted to conditions that are very general and therefore very simple; and they are uniform and invariable between one individual and another, save in exceptional cases. They possess a *specific* character.* Another group of reflex actions represents the reactions of the base and of the middle portion of the encephalon—the medulla, the corpora striata, the optic thalami. These reactions too are adapted to general conditions that vary little, but which are much more complex: they exhibit the "sensorimotor" activity of some authors. Even these are specific rather than individual, being very much the same in all the individuals of the same species.

The reflex actions of the brain, especially those of the highest type, consist of a reaction adapted to conditions highly complex, variable and instable, and differing between one individual and another, and from one moment to another in the same individual. These are the ideomotor reactions—volitions. How perfect soever this adaptation may be, it does not concern us here. It is only an effect, the cause of which is, not volition, but intellectual activity. The intelligence being a correspondence, a continual adjustment of internal relations to external, and in its highest form a perfectly coördinated ad-

* That is, they belong to the *species*.—TRANSLATOR.

justment, the coördination of these states of consciousness implies coördination of the movements that express them. So soon as an end is chosen, it acts after the manner of what is called by metaphysicians a final cause: it involves the choice of the means proper for its attainment. The adaptation therefore is a result of the mechanism of the intelligence. This point need not detain us.

But what interests us is this *choice*, this preference declared after a longer or shorter comparison of the motives. This it is which represents the individual reaction, as distinguished from the specific reactions: in the pathology of the will the former is sometimes superior, sometimes inferior to the latter.

What is this choice? Considered in its form, it is nothing but a *practical* affirmation, a judgment that executes itself. It is to be noted that considered physiologically and from without there is nothing to distinguish a voluntary from an involuntary movement: the mechanism is the same whether I wink my eyes reflexly or as a signal to an accomplice.* Considered psychologically and from within, there is nothing to distinguish a judgment in the logical sense of that term, *i.e.*, a theoretic affirmation, from a volition, save that the latter expresses itself by an act and thus is a judgment put in execution.

But what is it considered in its essence and not merely in its form? We will dwell for a moment on this point and will endeavor to throw some light upon it. By descending to a few very lowly biological facts we shall perhaps better understand wherein a choice consists. I shall not wander afield in search of analogies—for instance, the affinity of the magnet for iron. In the vegetable kingdom I shall simply quote the fact that insectivorous plants, as *Dionæa*, choose certain bodies that come in contact with them, to the exclusion of other bodies. So too the *Amœba* chooses certain organic fragments for its nourishment. These facts are incontestable, but they are difficult of interpretation. They are explained in a general way on the theory of a relation between the molecular composition of the

organism choosing and the organic substance chosen. No doubt the choice is exercised here in a very narrow field; no doubt, too, this is the rudest form of choice. With the rise and development of a more and more complex nervous system this blind affinity is transformed into a conscious tendency, and then into several contradictory tendencies whereof one gains the mastery—the one which represents the maximum of affinity. Example: a dog hesitating between several pieces of meat and choosing one. But in every case the choice expresses the nature of the individual at a given moment, under given circumstances, in a given degree: that is to say, the weaker the affinity the less marked the preference. Hence we may affirm that the choice, whether it results from one tendency or from many tendencies, from a present sensation, from images recalled, from complex ideas, or from complicated calculations projected into the future, is always based on an affinity, an analogy of nature, an adaptation. This is true of animals whether the lower or the higher, and of man, with respect either to vice or to virtue, science, pleasure or ambition. To restrict our remarks to man, two or more states of consciousness arise as possible ends of action; after some oscillations one end is preferred, chosen. Why so, unless it is that between this state and the sum of states conscious, subconscious and unconscious (the latter purely physiological) which at this moment constitute the person, the Ego, there exists agreement, analogy of nature, affinity? This is the only possible explanation of the choice, unless we say it is without a cause. Some one suggests that I kill my friend: that tendency is rejected with horror, excluded; that is to say it is in contradiction to my other tendencies and feelings, there is no association possible between it and them, and by that very fact it is suppressed.

In the mind of the criminal on the contrary there appears to be a certain agreement, that is an analogy, between the murder and his feelings of hate or avarice, and consequently it is chosen, affirmed as something that ought to be. Hence considered as a state of consciousness, volition is nothing but an affirmation (or a negation). It resembles a judgment, with this difference, that the one expresses a relation of agreement (or disagreement) between ideas, while the other expresses the same relation between tendencies; that while the one is a repose for the mind, the other is a stage of progress

* Physiologists distinguish between voluntary and involuntary muscles, but admit that the distinction is in no wise absolute. There are persons, like E. F. Weber, the physiologist, who can at will stay the movements of the heart; others, like Fontana, who can produce contraction of the iris, and so on. A movement is voluntary when, after repeated successful experiments, it becomes associated with a state of consciousness and falls under its control.

toward action; while the one is an acquisition, the other is an alienation, for intelligence is a saving and will an expenditure. But volition in itself, as a state of consciousness, has no more power of producing an act than the judgment has of producing a truth. That power comes from another source. We will return, toward the conclusion, to this important point.*

The ultimate reason of choice is therefore in the character, that is to say in that which constitutes the distinctive mark of the individual in the psychological sense, and differentiates him from all other individuals of the same species.

Is the character, or, to use a more general term, the person, the Ego, which for us is a cause—is it in its turn an effect? Undoubtedly it is, but we are not concerned here with the causes which produce it. The science of character, which 40 years ago John Stuart Mill regarded as a desideratum, does not yet exist, nor will it ever, in my opinion. Were there such a science we should have only to accept its results, without essaying an excursion into its domain, for to be ever tracing effects to their causes would be to follow the devious steps of metaphysics. As regards the matter in hand, we repeat, character is an ultimate fact, a true cause, though for another order of research it is an effect. We would remark in passing, and as a simple suggestion, that character—the Ego so far as it reacts—is an exceedingly complex product to the formation of which heredity and physiological circumstances both anterior and posterior to birth, as education and experience, have contributed. We may also affirm that what constitutes character is affective states, and the individual's own feelings, much more than any intellectual activity. It is the general tone of the individual's feelings, the general tone of his organism that is the first and the true motor. If this is lacking, the individual cannot exercise will at all, as we shall learn from pathology. It is precisely because this

fundamental state is, according to the individual constitution, stable or fluctuating, continuous or variable, strong or weak, that we have three principal types of will—strong, weak and intermittent—with all intermediate degrees and shades of difference between the three. But these differences, we repeat, spring from the character of the individual, and that depends upon his special constitution. We cannot push the inquiry beyond that point.

We are thus fully in agreement with those who say that the predominance of a motive by itself does not explain volition. The preponderant motive is only a part of the cause, and always the weakest part too, though the most visible: nor has it any efficaciousness except inasmuch as it is chosen, that is, as it forms an integral part in the sum of the states constituting the Ego at a given moment, and as its tendency to action is added to the group of tendencies that spring from the character, forming one with them.

Hence it is not necessary to look on the Ego as an entity nor to place it in some transcendental region, in order to recognize in it a causality of its own. It is a very plain fact of experience; the contrary is incomprehensible.

Physiologically all this means that the voluntary act differs both from simple reflex action, where one impression is followed by one contraction, and from the more complex forms of reflex action where one impression is followed by a number of contractions; that it is the result of the entire nervous organization, which itself reflects the nature of the whole organism, and which reacts in consequence.

Psychologically it means that the voluntary act in its complete form is not merely the transformation of a state of consciousness into movement, but that it presupposes the participation of that whole group of conscious or subconscious states which make up the Ego at a given moment.

We are therefore justified in defining the will to be an individual reaction, and in regarding it as that which is inmost to us. The Ego, albeit an effect, is a cause, and that in the strictest sense.

To sum up, we have seen that from the lowest reflex action to the highest act of will the transition is imperceptible, and that we cannot say precisely where volition proper, that is the personal reaction, begins. The difference is most pronounced at the two ends of the series: at one end extreme simplicity, at the other extreme

* What has been said amounts simply to a statement of the evident fact that a choice proceeds always in the direction of the greatest pleasure. No animal, whether void of reason or gifted with it, whether sound or diseased can will anything save what seems to it at the moment to be its greater good or its less evil. Even the man who elects death rather than disgrace or apostasy, chooses the less disagreeable alternative. Individual character and development of the reason cause the choice now to rise very high, again to fall very low; yet always it tends toward that which promises more pleasure. The contrary is impossible. This is a psychological truth so clear that the ancients held it to be an axiom, and it has taken volumes of metaphysics to obscure it.

complexity; on one hand a reaction that is ever the same in all the individuals of the same species, on the other a reaction which varies according to the individual. Simplicity and permanence, complexity and change are here paired.

From the evolution standpoint all these reactions clearly were in their origin individual. They have become specific, from having been repeated times beyond number in the individual and in the race. The beginning of will is found in the property of reacting possessed by all living matter, and its extinction in the property possessed by living matter of acquiring habits; and it is this involuntary activity, fixed and unalterable, which serves as the groundwork and the instrument of the individual activity.

But among the higher animals the hereditary legacy, the chance circumstances of birth, the continual adaptation to conditions that vary every instant, do not permit the individual reaction to become fixed nor to assume the same form in all the individuals. The complexity of their environment is their safeguard against automatism.

Here we bring to an end these preliminary remarks, the only purpose of which was to prepare the ground for the pathology of the will, which we are now to consider.

CHAPTER II.

IMPAIRMENT OF THE WILL.—LACK OF IMPULSION.

As we have seen, the term will denotes acts differing widely with respect to the conditions of their genesis, but all possessing this character in common, that they represent in one form or another, in one degree or another, a reaction of the individual. Without reverting to that analysis we would for clearness' sake note two external characters which distinguish all true volition: it is a definitive state; and it is expressed by act.

Irresolution, which is the beginning of a morbid state, has inner causes which pathology will enable us to grasp; it springs from the weakness of the incitements, or from their ephemeral action. Of persons of irresolute character some—though these are very few indeed—are such from affluence of ideas. The work of comparing motives, of balancing arguments, of calculating consequences constitutes an exceedingly complex cerebral state, wherein the tendencies to action

interfere with one another. But affluence of ideas is not of itself a sufficient cause of irresolution; it is only an adjuvant. The true cause here as everywhere is in the character.

This is seen more clearly in persons of irresolute will who have few ideas. They always act in the direction of least action or of weakest resistance. Their deliberation results with difficulty in making up their minds, and after they have made a choice the next step, action, is more difficult still.

Volition on the contrary is a definitive state; it closes the debate. By it a new state of consciousness—the motive chosen—is imported into the Ego as an integral part of it, to the exclusion of other states. The Ego is thus constituted fixedly. In fickle natures this definitive action is always provisional, that is, the Ego willing is so instable a compound that the most insignificant state of consciousness that happens to arise modifies it, alters it. The compound formed at this moment has no force of resistance the moment following. In all the states conscious and unconscious that each moment represent the causes of volition, the part played by the individual character is a minimum, the part played by external circumstances a maximum. Here we have that lower form of will mentioned before which is simply permissive.

We must not forget that to will is to act and that volition is a passing to action. To reduce the will as some do to a simple resolution, that is, to the theoretic affirmation that such or such an act will be done, is to base it upon an abstraction. Making the choice is but one step in the will process. If it does not translate itself into act, whether immediately or at the fit time, then it is in no wise distinguishable from a logical operation of the mind.

The diseases of the will we divide into two principal classes, accordingly as they indicate that the will is *impaired*, or that it is *abolished*.

Impairment of the will constitutes the most important part of its pathology; it exhibits the will mechanism deranged. We shall consider cases of impairment of the will under two heads, viz.: 1. Impairment of the will from lack of impulse; 2. Impairment of the will from excess of impulse. We will consider separately, 3, impairment of voluntary attention, on account of its great importance. And 4, under the head of "Caprices," we will study a special state, wherein will either is not constituted at all, or only by accident.

The first group comprises certain simple and well defined phenomena that may be studied with profit. We find in the normal state many of the elements of this group in those soft and pliant characters who in order to act require that another will should be joined to theirs; but disease will exhibit to us this state enormously exaggerated. Guislain has described in general terms that impairment which physicians designate by the term *aboulia*: "The patients," he says, "can will to themselves, mentally, according to the dictates of reason. They may feel a desire to act, but they are powerless to make a move toward that end. . . . Their will cannot overpass certain bounds: one might say that this force of action undergoes an arrest. The *I will* is not transformed into impulsive will, into active determination. Some patients are themselves surprised at the impotence with which their will is stricken. . . . Left to themselves, they will pass whole days in bed, or sitting in a chair. When spoken to or aroused, they speak rationally though curtly; they judge of things fairly enough."*

As those patients are the most interesting whose intelligence is intact, we shall cite such cases only. One of the earliest observations, and the best known of all, we owe to Esquirol. "A magistrate," he writes, "highly distinguished for his learning and his power as a speaker, was seized with an attack of monomania, in consequence of certain troubles of mind. He regained entirely his reason, but he would not go into the world again, though he acknowledged himself to be in the wrong in not doing so; neither would he attend to his business though he well knew that it suffered in consequence of this whim. His conversation was both rational and sprightly. When advised to travel or to attend to his affairs, 'I know,' he would answer, 'that I ought to do so, but I am unable. Your advice is very good; I wish I could follow it; I am convinced; but only enable me to will, with the will that determines and executes. . . . It is certain,' said he one day to me, 'that I have no will save not to will, for I have my reason unimpaired, and I know what I ought to do, but strength fails me when I ought to act.' †

Prof. J. H. Bennett records the case of

"a gentleman who frequently could not carry out what he *wished* to perform. Often on endeavoring to undress he was two hours before he could get off his coat, all his mental faculties, volition excepted, being perfect. On one occasion having ordered a glass of water, it was presented to him on a tray, but he could not take it, though anxious to do so; and he kept the servant standing before him half an hour, when the obstruction was overcome." He described his feelings to be "as if another person had taken possession of his will."*

Thomas De Quincey describes this paralysis of the will from personal observation. His remarks are the more valuable as coming from a man of subtle mind and fine literary tact. From the effects of long continued abuse of opium he was compelled to give up the studies in which he had been wont to delight. "I shrank from them," he writes, "with a sense of powerlessness and infantine feebleness the greater from remembering the time when I grappled with them [mathematics, intellectual philosophy, etc.] to my own hourly delight; and for this further reason, because I had devoted the labor of my whole life to . . . constructing one single work. . . . This was now likely to stand a memorial of hopes defeated, of baffled efforts, of materials uselessly accumulated. . . . In this state of imbecility I had for amusement turned my attention to political economy." He speaks of "the utter feebleness of the main herd of modern economists" with whose writings he had been familiar. At length he read Mr. Ricardo's book, and before he had finished the first chapter, wonder and curiosity that had long been dead in him were re-awakened. Conceiving however that some important truths had escaped even Ricardo's eye, he drew up his "Prolegomena to all Future Systems of Political Economy." Arrangements were made for printing this work, and it was even twice advertised. But the author had a preface to write and a dedication to Ricardo, and he found himself quite unable to accomplish all that. So the arrangements were countermanded and the "prolegomena" was not published. "I have thus described and illustrated my intellectual torpor in terms that apply more or less to every part of the four years during which I was under the Circean spells of opium. But for misery and suffering, I might in-

* Guislain, "Leçons Orales sur les Phrénopathies," vol. i., p. 479. See also Griesinger, "Traité des Maladies Mentales" (French translation), p. 46; Leubuscher, "Zeitschrift für Psychiatrie," 1847. † Esquirol, I., 420.

* Quoted by Carpenter, "Mental Physiology," p. 385, from Bennett, "The Mesmeric Mania of 1851,"

deed be said to have existed in a dormant state. I seldom could prevail on myself to write a letter; an answer of a few words to any that I received was the utmost that I could accomplish; and often that not until the letter had lain weeks or even months on my writing table. Without the aid of M. all records of bills paid or to be paid must have perished, and my whole domestic economy, whatever became of Political Economy, must have gone into irretrievable confusion. I shall not afterward allude to this part of the case; it is one however which the opium eater will find in the end as oppressive and tormenting as any other, from the sense of incapacity and feebleness, from the direct embarrassments incident to the neglect or procrastination of each day's appropriate duties, and from the remorse which must often exasperate the stings of these evils to a reflective and conscientious mind. The opium eater loses none of his moral sensibilities or aspirations; he wishes and longs as earnestly as ever to realize what he believes possible and feels to be exacted by duty; but his intellectual apprehension of what is possible infinitely outruns its power not of execution only but even the power to attempt. He lies under the weight of incubus and nightmare; he lies in sight of all that he would fain perform, just as a man forcibly confined to his bed by the mortal languor of a relaxing disease, who is compelled to witness injury or outrage offered to some object of his tenderest love: he curses the spells which chain him down from motion; he would lay down his life if he might but get up and walk; but he is powerless as an infant and cannot even attempt to rise.*

I shall cite only one observation more. It is recorded by Billod in the "*Annales Médico-pathologiques*," and exhibits the disease in all its aspects. The patient was a man 65 years of age, "of strong constitution, of lymphatic temperament, with a faculty specially developed for business, and of middling sensibility." Being strongly attached to his profession (he was a notary) he hesitated long before he decided to sell his office. Having done so, he fell into a state of profound melancholy, refusing all food, deeming himself undone, and going so far in his desperation as to attempt suicide. In the narrative which follows I omit only a few details of purely medical interest, and per-

mit the observer to describe the case in his own words:

"The faculty that seemed to us to be most notably affected was the will. The patient oftentimes manifests an inability for willing to perform certain acts although he has the wish, and although his sound judgment, after prudent deliberation, convinces him of the fitness and often even the necessity of so acting." The patient was at this time confined in the asylum at Ivry, and it was desired that he should go to Italy with Dr. Billod.

"When told that he must soon leave, 'I never can,' said he, 'yet I am tired of this place.' On the eve of his departure he again protested that he never could leave. The next morning he rose at six o'clock to go and make the same declaration to Mr. M. Some resistance therefore was anticipated, yet when I presented myself he made no opposition whatever, saying only, as though he felt that his will was ready to lapse, 'Where is the coach, so I may lose no time in getting into it.'

"It would be tiresome were we to take the reader with us and exhibit to him all the phenomena presented by the patient during this tour. These phenomena may conveniently be represented by three or four of the principal ones which I shall offer as a sample of all the rest. The first presented itself at Marseilles. The patient was requested, before he took ship, to execute a paper authorizing his wife to sell a house. He drew up the document himself, made a copy on stamped paper, and was in the act of signing his name when a difficulty arose for which we were quite unprepared. After having written his name, he was utterly unable to make the flourish. In vain he struggled to overcome the difficulty. A hundred times at least he went through the requisite movements with his hand raised above the paper—proving that the obstacle was not in the hand; a hundred times the will was unable to command the fingers to bring the pen down to the paper. Mr. P. was in an agony. He would rise from the desk with impatience, and stamp on the floor: then he would sit down again and try once more. Still he could not bring the pen to the paper. Will any one deny Mr. P.'s strong desire of completing his signature or assert that he does not understand the importance of the act? Will any one question the soundness of the organ that has to execute the flourish? The agent (the hand) seems to be as free from defect as the legal instrument, but the former cannot apply it self to the latter. Plainly the will is at fault. This struggle lasted three quarters of an hour. At last the effort had some result, after I had given up all expectation of any. The flourish was very imperfect, but it was executed. I was an eye witness of this struggle, taking the liveliest interest in it, and I declare that

* "*Confessions of an Opium Eater*," Boston edition, 1851, p. 106 *et seqq.*

it was impossible to give more manifest proof of the impossibility of willing, in spite of the desire.*

"A few days later I observed another instance of disability of a kindred nature. It was proposed to go out for a little while after dinner. Mr. P. wished very much to do so, desiring, as he told me, to get some idea of the appearance of the city. For five days in succession, he took his hat, arose from table, and got ready to go out. Vain hope! His will could not command his legs to put themselves in motion, and carry him into the street. 'Evidently I am my own prisoner,' he would say; 'it is not you that prevent me from going out, nor is it my legs that refuse; then what is it?' Thus would Mr. P. complain of his *not being able to will*, much as he wished it. At last, after five days, he made a final effort, and succeeded in getting out of doors, but five minutes later he came back perspiring and out of breath, as though he had run a distance of several kilometers, and much astonished himself at what he had just done.

"Instances of such inability were occurring every moment. If the patient longed to go to the theater, he could not will to go. If at table with agreeable company he wished to take part in the conversation, the same inability was experienced. True, oftentimes this lack of force existed, so to speak, in apprehension only: the patient feared lest he should not be able, and yet he succeeded in more instances than he failed: often however, it must be admitted, his apprehensions were justified."

After passing six days at Marseilles, patient and physician took ship for Naples, "though not without the utmost difficulty." During these six days

"the patient formally expressed his disinclination to embark, and his desire of going back to Paris, dreading in advance the thought of finding himself, with his diseased will, in a strange country, and declaring that he would have to be taken on board in irons. On the day appointed for sailing, he made up his mind to leave the hotel only when he believed that I was about to resort to force. Once outside the door, he stopped on the street, and there no doubt would have remained, were it not for the intervention of some sailors, and they had only to show themselves.

"Another circumstance goes to show still further the lesion of the will. We reached Rome on the day of Pius the Ninth's election. 'This is a fortunate circumstance, I should say,' he remarked, 'were I not ill. I wish I could assist at the coronation, but I do not

know that I can. I shall try.' On the morning of the day he arose at five o'clock, shaved, took out his black coat, etc., and said to me, 'You see I am doing a good deal; I do not yet know whether I shall be able to go.' At last, when the hour for the ceremony was come, he made a great effort, and with much ado succeeded in going down stairs. Ten days afterward, on the feast of St. Peter, after making the like preparations, and the same efforts, no result was reached. 'You see,' he said, 'I am still my own prisoner. It is not the wish that is wanting seeing that I have been getting ready for the last three hours. Here I am dressed, shaven and gloved, yet I cannot budge from here.' In short it was impossible for him to attend the ceremony. I had used a good deal of urgency, but judged that I must not force him.

"I will conclude this narrative, already too long, with one observation. It is that the instinctive movements—those which are not subject to the will proper—were not affected in this patient like those which may be called the ordained movements. Thus, on arriving at Lyons, upon our return journey, our coach ran over a woman that the horses had thrown down: my patient regained all his energy, and not waiting for the vehicle to stop, threw off his cloak, opened the door, and was the first to descend and offer assistance to the woman."

The author adds that the voyage had not the good effect he had anticipated; that the patient however felt better when riding in a carriage, especially in a jolting vehicle over a rough road; and thus he went home to his family in about the same state.*

The cases just cited represent a very definite group. From them we gather some very precise facts, and a few highly probable inferences. And first let us consider the facts.

1. The muscular system and the organs of movement remain intact: they offer no impediment. The automatic activity which constitutes the ordinary routine of life persists.

2. The intelligence is intact—at least there is nothing that would warrant us in saying that it has suffered in the least. Ends are clearly apprehended, means likewise, but to pass to action is impossible.

Here then we have a disease of the will in the strictest sense. And we may remark that disease makes for our behoof a curious experiment. It creates exceptional conditions, such as can be produced in no other way: it makes two halves of the man, utterly extinguishing all power of individual reaction, but leaving intact all else; it produces for us, so far as the

* Je déclare qu'il était impossible de constater plus manifestement une impossibilité de vouloir, malgré le désir. I transcribe this observation literally, without any reflection upon the author's psychological doctrine. (Author's note.)

* "Annales Médico-Psychologiques," vol. x.

thing is possible, a being reduced to pure intelligence.

Whence comes this impotence of will? Here the inductions begin. As to its immediate cause two hypotheses only are possible: it consists of an impairment either of the motor centers or of the incitements they receive.

The first hypothesis has no valid reason to rest on.* At least we know too little about this matter to warrant even conjecture.

The second hypothesis remains. Experience confirms it. Esquirol has preserved for us the remarkable answer made to him by a patient who had been cured: "This lack of activity was owing to the fact that my sensations were too faint to exert any influence on my will." The same author has also noted the profound change such patients experience in their general sense of existence (*cœnæsthesia*). "My existence is incomplete," writes one of his patients to him. "The functions, the power of performing the ordinary acts of life, remain with me: but in the performance of them there is always something wanting, to wit, the sensation proper to each and the pleasure that follows them. Each one of my senses, each part of myself is, so to speak, separated from me, nor can it now procure for me any sensation." No psychologist could better define the point at which the affective life of the patient was impaired.

Billod relates the case of a young Italian woman "of brilliant education" who became insane from having been crossed in love; she recovered, but afterward fell into a profound apathy. "She reasons soundly on every subject, but no longer has any power of will or of love; no consciousness of what happens to her, of what she feels or of what she does. She says she is as one that is neither dead nor alive; like one living in continual sleep, to whom objects appear as though wrapt in a cloud, to whom persons seem to move like shadows, and words to come from a world far away." †

If, as we shall see later, the voluntary act is made up of two distinct elements, viz., a state of consciousness totally incapable either of producing action or prohibiting it, and organic states which alone have this power, then it must be admitted that the two elements, though usually they

are simultaneous, as being the effects of one same cause, are here dissociated. The inability to act is a fact. But the intensity of the state of consciousness, which intensity is clearly intermittent—is that a fact? If so, then we must say that the requisite conditions are present here, but only so far as this element is concerned. But is this intensity of consciousness an illusion? I am inclined to believe that it is. The strong desire to act that some of the patients suppose themselves to have seems to me to be simply an illusion of consciousness. The intensity of a wish is something entirely relative. The patient being in a state of general apathy, an impulse that to him appears to be strong is in fact below the average: hence inaction. When we come to study the state of the will in somnambulism we shall see that though some patients firmly believe their acts while in that state to be controllable by their will, experience at last compels them to admit that this judgment is erroneous and that their consciousness deludes them completely.*

When however an excitation happens to be very strong, sudden, unexpected, that is when it combines all the conditions of intensity, then in most cases it serves as an impulse to action, as in the case of the patient who recovered his energy to save a woman from being run over. † Every one can realize for himself this state of *aboulia*, for there is no one but has had his hours of weakness when all incitements, whether inward or outward, all sensations and all ideas have been ineffective, leaving him impassive. Between this state and *aboulia* there is only a quantitative difference—the difference between a transient and a chronic state.

If these patients are unable to will the reason is that however many projects they may conceive, only a feeble desire to act is awakened. I employ these terms in order to conform myself to the current phraseology, still it is not the weakness of the desire, as a simple state of consciousness, that produces inaction. To infer that it is, is to reason from mere appearances. As we have already shown every nervous state—every sensation every idea—is all the more surely translated into movement, as it is accompanied by those other nervous states, whatever they may be, which correspond to feeling and sentiment. It is from the weakness

* It must be remembered that we are speaking not of the motor organs, but of the *centers*, whatever opinion may be held as to their nature and their localization.

† "Annales Médico-Psychologiques," *ubi supra*.

* See Chapter VI., *infra*.

† I learn from Dr. Billod that this patient regained his activity, in consequence of the events of June, 1848, and the emotions they excited in him.

of these states that aboulia results, and not from weakness of desire, which is only a sign.

The cause therefore is a comparative insensibility, a general impairment of sensibility: that which is impaired is the affective life, the emotional faculty. But whence comes this morbid state? The question is purely a physiological one. Indisputably there exists in these patients a notable depression of the vital activities; and this may attain to such a degree as to involve all the faculties, so that the individual becomes like some inanimate thing. Physicians call this state melancholia, lypemania, stupor, and its symptoms are a slowing of the circulation, a lowering of the temperature of the body, and an almost absolute immobility. These extreme forms do not belong to our theme, but they exhibit to us the ultimate causes of impotence of the will. Every depression in the vital tone, be it slight or be it grave, transient or lasting, has its effect. So little is the will like a faculty controlling as a master, that it depends momentarily upon the most trivial causes: it is at their mercy. And yet, inasmuch as it has its source in biological actions that take place in our inmost tissues, we see how truly it is said to be our very self.

The second group is like the first in its effects (impairment of the will) and in its causes (depressive influences). The only difference is that the incitement to act is not suppressed. The first group presents positive causes of inaction; the second, negative causes. Inhibition results here from an antagonism.

In all the cases now to be mentioned the impairment of the will springs from a sense of fear, based on no rational ground, and varying from simple anxiety to anguish and paralyzing terror. In some instances the intelligence appears to be intact, in others impaired. Again, some of these cases are of an indefinite character, and it is difficult to say whether they indicate a disease of the will alone.*

The following case shows the transition from one group to the other; in fact it belongs to both. "A man of 30 years found himself involved in certain civic tumults which frightened him greatly. Thereafter, though he retained perfectly his mental balance, managing his private

affairs very well and carrying on a large business, he would not remain alone either on the street or in his chamber, but was always accompanied. If he went out, it was impossible for him to return home alone. Whenever he went out unattended, which he rarely did, he would soon halt on the street, and there remain indefinitely, neither going on nor turning back, unless some one led him. He seemed to have a will, but it was the will of those around him. Whenever the attempt was made to overcome this resistance of the patient, he would fall into a swoon.**

Several alienists have recently described under the names of "peur des espaces," "Platzangst," and agoraphobia, a curious sort of anxiety that paralyzes the will, and against which the individual is powerless to react, or at least does so only in a roundabout way. A case observed by Westphal may serve as a type. A traveler of strong constitution, perfectly sound of mind and presenting no disorder of the motor faculty, is suddenly seized with a feeling of alarm at the sight of an open space—as a public square—of some little size. If he must cross one of the great squares of Berlin, he fancies the distance to be several miles and despairs of ever reaching the other side. This feeling grows less or disappears if he goes around the square, following the line of houses, also if he has some person with him, or even if he supports himself on a walking cane. Carpenter† quotes from Bennett a case of "paralysis of the will" which seems to me to belong to the same class. "If when walking in the street this individual [a patient of Dr. Bennett's] came to a gap in the line of houses, his will suddenly became inoperative and he could not proceed. An unbuilt-on space in the street was sure to stop him. Crossing a street also was very difficult, and on going in or out of a door he was always arrested for some minutes."

Again, some persons while walking in the open country are more or less uneasy unless they keep close to the hedges or to the trees. Many other illustrations might be given, but that is needless, for they would add nothing to the fundamental fact.‡

* Billod, *loc. cit.*, p. 191.

† *Op. cit.*, p. 385.

‡ For further details see Westphal, "Archiv für Psychiatrie," vol. iii. (two articles); Cordes, *ibidem*; Legrand du Saulle, "Annales Médico-psychologiques" (1876), p. 405; Ritti, "Dictionnaire Encyclopédique des Sciences Médicales," art. FOULE AVEC CONSCIENCE; Maudsley, "Pathology of Mind"

* Here it is well to remark once for all that, as we are studying the diseases special to the will, we have had to eliminate all cases where the psychic activity is affected as a whole, and those in which affections of the will are only the effect and the expression of intellectual insanity.

The medical discussions of this morbid state do not concern us here. The psychological fact is reducible to a sense of fear, and that this fear is puerile and imaginary as regards its causes makes no difference for us: we have to do only with its effect, which is to disable the will. But we must inquire whether this depressive influence only arrests the will-impulse, the latter being in itself intact, or whether the power of individual reaction also is weakened. The latter hypothesis is well grounded for, the sense of fear not being insurmountable—as these patients prove in some instances—we must infer that the individual's power of reaction is fallen below the general level. Hence the arrest of volition results from two causes acting in the same direction.

Unfortunately we are ignorant of the physiological conditions of this impairment. Many are the conjectures that have been made. Cordes, himself subject to this infirmity, regards it as "a functional paralysis symptomatic of certain modifications of the motor centers, and capable of producing upon us impressions, in particular an impression of fear, which gives rise to a momentary paralysis; this effect is almost nothing if the imagination alone is in play, but it is carried to a very high degree by the operation of the accompanying circumstances." According to Cordes, then, the primary cause is "a paresic exhaustion of the motor nervous system, of that portion of the brain which governs not only locomotion but muscular sensibility also."

This explanation, were it firmly established, would be of great consequence for our research. It would show that the impotence of the will depends on an impotence of the nerve centers—and this would have the advantage of supplying to our inquiries an assured basis in physiology. But it would be premature to draw here conclusions that will come in more fitly at the end of our work.

I shall have little to say of the mental state denominated "grübelnsucht." It represents the pathological form of irresolution of character, just as *aboulia* represents that of the apathetic character. It consists of a state of continual hesitation, for the most frivolous reasons, with inability to reach any definitive results. This hesitation is seen at first in the purely intellectual order. The patient keeps asking himself questions continually. I take an illustration from Legrand du Saule. "A very intelligent woman could not go into the street but she would

be asking herself, 'Is some one going to jump out of a window and fall at my feet? Will it be a man or a woman? Will the person be wounded or killed? If wounded, will it be in the head or the legs? Will there be blood on the pavement? Shall I call for assistance, or run away, or recite a prayer? Shall I be accused of being the cause of this occurrence? Will my innocence be admitted?' and so on. These questionings go on without end. Several cases of a like nature are recorded in special treatises." *

If it involved only this "psychological rumination,"—to use Mr. du Saule's expression—we should have nothing to say about this morbid state; but the perplexity of the mind expresses itself in acts. The patient durst not attempt anything without endless precautions. If he has written a letter, he reads it over and over again, for fear he should have forgotten a word or committed some fault of spelling. If he locks a drawer, he must make sure again and again that it was done aright. It is the same as to his dwelling: he has to satisfy himself repeatedly as to the doors being locked, the keys in his pocket, the state of his pocket, etc.

In a graver form of the malady the patient, haunted by ridiculous abhorrence of contact with anything dirty or unclean, will not touch a piece of money, a door knob, a window fastening or the like; and he lives in a state of constant apprehension. Such was the cathedral beadle mentioned by Morel, who, worried for twenty-five years by absurd fancies, feared to touch his staff; the man would reason with himself, and rail at himself till his apprehensions were counteracted, yet he always was afraid that the next time he should not succeed.†

This malady of the will results in part from weakness of character, in part from the state of the intelligence. It is quite natural that this current of vain imaginings should find expression in frivolous acts; but the impotence of the individual reaction plays an important part. We find also a lowering of the general tone, and the proof of this is seen in the causes of this morbid state, namely hereditary neuropathy and debilitating maladies; also in the crises and the syncope brought on by the effort to act; so too in those extreme forms of the disease where

* See particularly Legrand du Saule, "La Folie du Doute avec Délire du Toucher" (1875); Griesinger, "Archiv für Psychiatrie" (1869); Berger *ibidem* (1876); Ritti, "Dict. Encycl." *loco citato*.
† "Archives Générales de Médecine" (1866).

the patient, harassed by his unceasing apprehensions, will neither write, nor listen, nor speak, but keeps muttering to himself, or perhaps only moving his lips.

Finally let us notice those cases in which the impairment of the will approaches extinction. When a persistent state of consciousness is accompanied by an intense feeling of terror, there is produced an almost absolute inhibition, and the patient seems stupid without really being so. Such was the case with the young man mentioned by Esquirol, who appeared to be idiotic, who had to be dressed, put to bed, fed like a child, and who after his recovery declared that an inward voice used to say to him, "Do not budge, or you are dead."*

Guislain also reports a curious case, but in this instance the lack of psychological data leaves us in a quandary and no positive explanation can be offered. "A young lady, courted by a young man, was seized with an alienation of mind the true cause of which was unknown, but its distinctive feature was a strong aversion to society, which soon was transformed into a morbid mutism. During twelve years she made answer to questions only twice, the first time under the influence of her father's imperative words, and the second time on her being committed to an asylum. On both occasions she was strangely, surprisingly laconic."

For two months Guislain made repeated efforts to effect a cure. But "my efforts were vain, and my exhortations without effect. I persisted, and before long noted a change in her features, and a more intelligent expression in her eyes. Shortly afterward, from time to time, she would utter sentences, expressing her thoughts clearly, but this was at long intervals, for she manifested extreme repugnance to comply with my requests. It was evident that her self-love was each time gratified by the victory she gained over herself. In her answers it was impossible to detect the slightest sign of disordered intellect: her insanity was purely a disease of the impulsive will. Oftentimes a sort of bashfulness seemed to restrain this patient, whom I was beginning to regard as convalescent. For two or three days she ceased to speak, and then, yielding to renewed solicitations, she recovered speech again, till finally she took part of her own accord in the conversation going on in her hearing. . . . This recovery is one of the most-surprising in-

stances of cure that have come under my observation." The author adds that restoration was complete and permanent.

This state of morbid inertia, of which aboulia is the type, where the "I will" is never followed by action, shows volition, as a state of consciousness, and the effective power of acting to be two distinct things. Not to dwell on this point at present, let us direct our attention to this fact of effort—a vital point in the psychology of the will, and which is lacking here.

The feeling of *muscular* effort has been studied so thoroughly and so minutely by Dr. William James* that there is no need of going over the ground again; it will suffice to recall his conclusions. That physiologist has shown that the sense of the muscular force expended in the performance of an act is a complex afferent sensation coming from the contracted muscles, the tense ligaments, the compressed articulations, the shut glottis, etc. He considers in detail, taking his stand upon the results of experiment, the opinion which holds it to be an *afferent* sensation connected with the motor discharge and coincident with the *outgoing* current of nervous energy. In particular he has shown, after Ferrier and other writers, that if in case of paralysis the patient retains the feeling of effort though quite unable to move the paralyzed member, the reason is because the conditions of the consciousness of effort persist, the patient moving the opposite member or organ.

But Dr. James justly distinguishes the *muscular* from the *volitional* effort which in many cases either involves no immediate movement at all, or only an exceedingly weak muscular energy. This we see in the case of the man who, after long hesitation, decides to put arsenic into his wife's glass to poison her: and every one is familiar through personal experience with this state of mental struggle in which the effort is all internal. But here we part regretfully with this author who locates this effort in a region apart and supersensible. To us it seems to differ from muscular effort only in this one point: its physiological conditions are ill understood, and we can offer only hypotheses.

There are two types of this volitional effort, of which the one consists in arresting the instinctive, the passionate, the habitual movements, the other in overcoming languor, torpor, timidity. The one is an effort with a negative and the other an ef-

* Esquirol, vol. ii., p. 287.

* "The Feeling of Effort," Boston, 1880

fort with a positive result: the one produces inhibition the other impulsion. These two types may themselves be reduced to one formula: there is effort when the volition follows the line of greatest resistance. This volitional effort never takes place when the impulsion (or the inhibition) and the choice coincide, when our natural tendencies and the "I will" go in the same direction: in simpler language, when that which is *immediately* agreeable to the individual and that which is chosen by him are the same. It always takes place when two groups of antagonistic tendencies are struggling to supplant each other. As every one knows, this struggle takes place between the lower tendencies, whose adaptation is restricted, and the higher tendencies, whose adaptation is manifold. The former are always by nature the stronger; the latter are sometimes the stronger on account of adventitious circumstances. Again, the former represent a force enregistered in the organism; the latter a recent acquisition.

How comes it then that these naturally weaker tendencies prevail? It is because the "I will" is an element in their favor—this, of course, not inasmuch as it is a mere state of consciousness, but because underneath this volition there exist the causes known, half-known, or unknown which we have often designated by the term individual character. These minor active causes, which constitute the individual physically and psychically, are not mere abstractions: they are physiological or psychophysiological processes; they presuppose work done in the several nervous centers. Is it rash to maintain that the feeling of volitional effort too is an effect of these physiological processes? The only objection that can be urged is our inability to determine its mechanism. This point is all the more obscure because the mechanism must be different according as the effect to be produced is an impulsion or an inhibition; so too the feeling of volitional effort is not the same in the two cases.

The inward struggle is accompanied by a sense of fatigue often intense. Though we know but little about the nature and the causes of this state, it is generally supposed that even in muscular effort the seat of fatigue is in the nerve centers that call forth the contraction, not in the muscles: that there is nervous exhaustion, not muscular. In reflex contractions no fatigue is felt. Among subjects of hysterical contractions are seen to persist indefi-

nately, and yet the patient has no sense of lassitude; hence it is the voluntary effort that causes fatigue and not the contraction of muscle.*

Apart from our ignorance, we have no reason to attribute to the volitional effort a peculiar character. Are the nerve elements capable of furnishing a surplus of work for a given period in all cases where this volitional effort comes into play? Or, on the contrary, are they, owing to their nature or for the want of training and exercise, quickly exhausted and incapable of acquiring fresh strength? Have they or have they not a sufficiency of available force stored up? The problem of action in the direction of greatest resistance is reduced to its ultimate terms. It is this hidden, almost unsuspected work that makes itself known through the feeling of volitional effort. Hence the feeling of effort in all its forms is a subjective state corresponding to certain processes going on in the nerve centres and in other portions of the organism, but differing from them even as the sensation of light or of sound differ from their objective causes. To be capable of great muscular effort, the appropriate nerve centers must be able to produce a good deal of work for a prolonged period, and this depends on their constitution and on the rapidity with which they repair losses. So too, to produce a great moral or intellectual effort, the appropriate nerve centers, whatever they may be (and our ignorance touching this point is nearly total), must be able to produce intense work over and over again, and must not be quickly exhausted and slow to repair losses. The capacity for effort is therefore in the last analysis a natural gift.

To make our meaning clearer take the case of a vicious character. Suppose that never in his life, whether spontaneously or under the influence of others, he has experienced any faint desire of amendment: the reason is, because he entirely lacks the moral elements and their corresponding physiological conditions. Should the thought of amendment by any chance occur to him, it is to be remarked in the first place that this occurrence is no act of the will, though it supposes the pre-existence of certain psychophysiological elements and their being called into play. Now suppose he elects to pursue this object, approves this course, wills it; if the

* Richet, "Physiologie des Nerfs et des Muscles," pp. 477-490; Delbœuf, "Étude Psychophysique," pp. 92 et seq., in "Éléments de Psychophysique," vol. I.

resolution does not persist, it is because in the man's organization there exists no capacity for that iterated work of which we have spoken; but if the resolution does persist, it is because it is supported by an effort, by that inner work which produces arrest of the opposite states. Organs are developed by exercise, and this holds good here; so that repetition becomes easy. But if nature has laid no foundation, given no potential energy, there is no result. Hence the theological doctrine of grace as a free gift appears to be bottomed on a far more correct psychological theory than the opposite opinion,* and we see how easily it might be made to undergo a physiological transformation.

To return to the morbid forms that are the objects of our study, they involve a temporary, accidental incapacity for effort, which however extends to almost the entire organism.

CHAPTER III.

IMPAIRMENT OF THE WILL.—EXCESS OF IMPULSION.

WE have just been considering instances in which, though the intellectual adaptation—that is the correspondence between the intelligent being and his environment—is normal, the impulse toward action is either null, very weak, or at least insufficient. In the language of physiology, the cerebral actions which are the basis of intellectual activity (as the thought of ends and of means, choice, etc.), remain intact, but they lack the concomitant states which are the physiological equivalents of the feelings, and the absence of these causes failure to act.

We are now to study phenomena quite the opposite of these in certain respects. In this second group the intellectual adaptation is very little, or at all events very instable; the motives dictated by reason are forceless either for action or for restraint; and the lower impulses gain what the higher impulses lose. The will, that is to say the rational activity, disappears, and the individual reverts to the domain of instinct. Nothing could prove more effectually that the will, in the strict sense of the term, is the crown, the final term of an evolution, the result of a multiplicity

of disciplined tendencies coördinated with one another; that it is the most perfect species of activity.

Let us examine the facts. We will divide them into two groups: 1. Those which, being hardly if at all conscious, denote an absence rather than an impairment of will; 2. Those which are accompanied by perfect consciousness, but in which, after a longer or shorter struggle, the will succumbs, or is saved only by assistance from without.

1. In the former case "the impulsion may be sudden and unconscious, followed by immediate execution, the understanding even not having had time to take cognizance of it. . . . In such case the act possesses all the characters of a purely reflex phenomenon, without any intervention whatever of the will: it is in fact a convulsion differing from ordinary convulsions only in that it consists of movements associated and combined in view of a determinate result. Such is the case of the woman who, seated on a bench in a garden, oppressed with unwonted sadness, suddenly rose to her feet, threw herself into a ditch full of water, as if to drown herself, and who, after being rescued and restored to herself fully, declared a few days later that she was unconscious of having wanted to commit suicide and had no recollection of the attempt she had made." *

"I have seen," says Luys, "a number of patients who repeatedly attempted suicide in the presence of those who watched them, but they had no recollection of the fact in their lucid state. And what proves the unconsciousness of the mind under these conditions is the fact that the patients do not perceive the inefficiency of the methods they employ. Thus a lady who attempted suicide whenever she saw a table knife, did not notice one day when I was watching her that I had substituted for the knife a harmless instrument. Another patient tried to hang himself with a half rotten cord that was not strong enough to bear even slight tension." †

Impulses of this kind are so frequent among epileptics that pages might be filled with accounts of them. Hysterical patients too furnish innumerable examples: they manifest an uncontrollable tendency toward the immediate gratification of their caprices or the satisfaction of their wants.

Other impulsions produce effects that

* The doctrine of grace is found even among the Hindus, particularly in the "Bhagavad Gîtâ," xi., 53. Consult Barth, "Les Religions de l'Inde," pp. 48, 136.

* Foville, "Nouveau Dictionnaire de Médecine," art. FOLIE, p. 342.

† "Maladies Mentales," pp. 373, 439, 440.

are less serious, but they indicate the same psychic state. "In some patients the overexcitation of the motor forces is such that they keep walking for hours at a time without stopping, never looking about them, like mechanical figures that have been wound up." "A marchioness possessed of very great intelligence," says Billod, "would in conversation interrupt a sentence with an unseemly or an obscene epithet addressed to some one in the company, and then take up the broken sentence again. The utterance of this epithet was accompanied by a blush; the lady seemed to be annoyed and confounded, and the word was as it were jerked out, like an arrow that is shot unawares from the bow." "An aged victim of hysteria, a woman of much intelligence and very clear-headed, used to feel at certain times the need of going into some lonely place and shouting aloud; there she would give vent to her grievances and her complaints against her family and her surroundings. She knew perfectly well that it was wrong to publish certain secrets, but, as she used to say, she must speak and satisfy her grudges."*

This last case brings us to irresistible impulses that are conscious. But at present we have to do with those which are unconscious. Cases of this kind we might cite in abundance. They exhibit the individual reduced to the lowest degree of activity—that of pure reflex action. His acts are unconscious (or at least not deliberate), immediate, irresistible, and their adaptation is of little complexity and invariable. Considered from the point of view of physiology and of psychology, the human being, under these conditions, is like an animal that has been decapitated, or at least deprived of its cerebral lobes. It is generally held that the brain can govern the reflex actions, and this opinion rests upon the following grounds: An excitation, starting from any point of the body becomes divided on reaching the spinal cord, and then pursues two routes. It is transmitted to the reflex center by a transverse route, and to the brain by a longitudinal and ascending route. Since the transverse route presents the greater resistance, transmission in that direction takes some time, while transmission longitudinally on the contrary is much more rapid. Hence there is time for the suspensive action of the brain to take place and to regulate the reflex actions. The

brain being in the causes just mentioned without action, its activity remains at its lower degree and volition does not occur, its necessary and sufficient conditions not being present.

2. The phenomena of the second group are worthy of more detailed study: they explain the overthrow of the will and the artificial means that support it. The patient is fully conscious of his situation; he feels that he is not master of himself, that he is dominated by an inner force and irresistibly urged on to perform actions that he condemns. The intelligence remains sufficiently sane, and the insanity affects only the acts. We find in a work by Marc that is now almost forgotten* a rich collection of facts upon which later writers have freely drawn. We quote a few.

A lady subject at times to homicidal impulses used to request to be put under restraint by means of a strait waistcoat, and would let her keeper know when the danger was passed and when she might be allowed her liberty. A chemist haunted with similar homicidal impulses used to have his thumbs tied together with a ribbon, and in that simple restraint found the means of resisting the temptation. A servant woman of irreproachable character asked her mistress to let her go away, because she was strongly tempted to disembowel the infant she took care of whenever she saw it stripped. Another woman, a person of much intellectual cultivation and very affectionate to her relatives, "began to beat them in spite of herself and called for assistance, begging that she might be held down in an arm-chair." A victim of melancholia haunted with the thought of suicide arose in the night, knocked at his brother's door and cried out to him, "Come quick; suicide is pursuing me and soon I shall be unable to withstand it."

Calmeil in his "*Traité des Maladies Inflammatoires du Cerveau*" cites the following cases, of which he was a witness and which I will give in detail, for so I shall be dispensed from recounting many more:

"Glénadel having lost his father in childhood, was brought up by his mother who adored him. On attaining his 16th year his character underwent a change. Till then he had been a good and dutiful son, but now he became gloomy and taciturn. Being pressed

* *Luys, loco citato, 167, 212; Billod, loco citato, 193 sq.*

* "*De la Folie considérée dans ses Rapports avec les Questions Médico-judiciaires.*" 2 vols. 8vo. Paris, 1840.

with questions by his mother, he at length resolved to make a confession :

“‘To you I owe everything,’ he said, ‘and I love you dearly: still for the last few days a thought that is ever in my mind has been driving me to kill you. Do not let me at last give way to it, do not let so great a misfortune befall, but give me leave to enlist.’ In spite of her urgent solicitations he was immovable in his resolution, left his home and made a good soldier; yet a lurking desire was ever urging him to desert, so that he might return and kill his mother. At the close of his term of service this thought was as strong as on the first day. He enlisted for another term, and still the homicidal instinct persisted, though now another victim was substituted. He no longer thinks of killing his mother; night and day he now is conscious of a horrid impulse to murder his step-sister. In order to withstand this second impulse he condemned himself to lifelong exile from his home.

“At this juncture a man from his own neighborhood joined the regiment, and to him Glénadel confided his distressing secret. ‘Cheer up,’ said the other, ‘that crime is out of the question, for your step-sister died a short time ago.’ On hearing these words Glénadel sprang to his feet like a captive set free. He was filled with joy and set out for his home, which he had not seen since his boyhood. Arrived there he saw his step-sister alive. He uttered a cry, and the terrible impulse instantly seized him again. That evening he had his brother to put him under restraint. ‘Take a strong cord,’ he said, ‘and tie me up in the barn like a wolf, and send word to Dr. Calmeil.’ The physician obtained for him admission to an asylum for the insane. On the eve of his admission he wrote to the director of the asylum: ‘Sir, I am about to enter your establishment: I shall behave there as in my regiment. People will think I have recovered, and at times perhaps I shall feign recovery. You must not believe me, and I must never be permitted to leave under any pretext. When I beg to be allowed to go at large, redouble your vigilance, for the only use I shall make of that liberty will be to commit a crime I abhor.’”

It is not to be supposed that this case is unique or even a very uncommon one: in works on insanity we find recorded many instances of persons who, tormented by the impulse to kill those who are dear to them, take refuge in asylums, becoming voluntary prisoners.

The irresistible though conscious impulse to steal, to set fire to houses, to commit suicide by alcoholic excess, belongs to the same category.* Maudsley in his “Pathology of Mind” (Chapt. VIII.) presents so many examples that I cannot do

* See Trélat, “Folie Lucide;” Maudsley, “Crime and Insanity.”

better than to refer to that work. I thus spare the reader useless repetition. For me it suffices to point out the enormous multitude of facts which justify the considerations I am about to offer.

It is to be remarked that the transition from the sane state to these pathological forms is almost imperceptible. Persons that are perfectly rational experience insane impulses, but these sudden and unwonted states of consciousness are without effect, do not pass into acts, being suppressed by opposite forces, by the dominant mental habit. Between this isolated psychic state and the states antagonistic to it there exists so great a disproportion that there is even no struggle between them. In other cases, usually regarded as of very little moment, “there is some eccentricity of behavior but nothing reprehensible or dangerous—simple oddity, capriciousness. Or again, a person is given to acts which though not seriously compromising are nevertheless mischievous—as destroying or beating an inanimate object, tearing one’s clothing, etc. We have at the present time under observation a young woman who chews up all her gowns. Then there is the oft quoted case of the art amateur who, happening at a museum to see a valuable painting, felt an instinctive impulse to punch a hole through the canvas. Oftentimes these impulses go unnoticed, except by the consciousness of the one who experiences them.”*

Sometimes fixed ideas of a character frivolous or unreasonable find lodgment in the mind which, though it deems them absurd, is powerless to prevent them from passing into acts. Many curious examples of this are to be found in a work by Westphal. A man, for instance, is haunted by the thought that perchance he might commit to writing that he has been guilty of some crime, and lose the paper. Accordingly he carefully preserves every bit of paper he finds, picks up paper on the streets to make sure that it contains no writing, takes it home and hoards it. He is fully conscious of the absurdity of the phantasy which worries him continually: he does not believe in it, nevertheless he is powerless to dismiss it.†

* Foville, *opus citatum*, p. 341.

† Westphal, “Ueber Zwangsvorstellungen,” Berlin, 1877. We may add that the fear of doing an act sometimes leads one inevitably to do it. This we see illustrated in vertigo, when a person throws himself down in the street through fear of falling, when one wounds himself through fear lest he should wound himself, etc. These phenomena are explained by the nature of the mental representation, which by reason of its intensity passes into act

Between acts that are frivolous and those which are dangerous the difference is only quantitative: what the former exhibit to us foreshortened, the latter exhibit in enlarged proportions. We will try to explain the mechanism of this disorganization of the will.

In the normal state an end is chosen, approved, attained; that is to say the elements of the Ego, whether all or a majority of them, concur toward attaining it. Our states of consciousness—feelings and ideas, with their respective motor tendencies—and the movements of our members form a *consensus* that converges toward this end with more or less effort by means of a complex mechanism made up both of impulsions and inhibitions.

Such is the will in its perfect, typical form. But this is not a natural product; it is the result of art, of education, of experience. It is a structure that has been built up slowly, bit by bit. Observation both subjective and objective shows that each form of voluntary activity is the fruit of a conquest. Nature supplies only the raw material—in the physiological order a few simple movements, in the psychological order a few simple associations. To assist these simple and almost invariable adaptations, there must be formed other adaptations more and more complex and variable. For instance; the babe must acquire the power of using its legs, arms, and all the movable portions of its body, by means of experiment, combining the movements that are appropriate and suppressing those which are of no advantage. The simple groups so formed must be combined in complex groups, these into groups more complex still, and so on. A similar operation is necessary in the psychological order. What is complex is never won at the first effort.

But it is plain that in the edifice so built up little by little the original materials alone are stable, and that as complexity increases stability diminishes. The simplest actions are the most stable anatomically, because they are congenital, registered in the organism; and physiologically, because they are continually repeated in the experience of the individual, as also—if we take account of heredity, which opens up an illimitable field—in the innumerable experiences of the species and of all species.*

* The will-power being constituted when certain groups of movements obey certain states of consciousness, we may cite as a pathological case the fact mentioned by Meschede ("Correspondenzblatt," 1874) of a man who "found himself in this curious condition, that when he would do anything,

On the whole, the surprising thing is that the will, the complex and higher order of activity, should become predominant. The causes which raise it to that rank and hold it there are the same which in man raise and hold the intelligence above the sensations and the instincts: and taking humanity as a whole, facts prove the dominion of the one to be as precarious as that of the other. The great development of the mass of the brain in civilized man, and the influence of education and of the habits it produces, explain how it is that, in the face of so many adverse chances, rational activity so often retains the mastery.

The pathological facts that have been cited prove that the will is no entity reigning by right of birth, but a resultant that is always instable, always liable to break up, and in truth only a lucky accident. These facts—and they are innumerable—represent a state that may be regarded equally as a dislocation of the will and a retrograde form of activity.

If we study cases of irregular impulsions accompanied by full consciousness, we find that this subordination of tendencies—the will—is here broken in twain: for the *consensus* which alone constitutes the will is substituted a conflict between two groups of opposite and nearly equal tendencies, and hence it may truly be said that the will is dislocated.*

Considering the will not as a constituted whole but as the culminating point of an evolution, we must say that the lower forms of activity have the mastery and that the activity which is distinctively *human* retrogrades. We would observe however that the term "lower" has no moral implication here. One group is lower because it is evident that the activity which expends itself wholly in expressing a fixed idea or a blind impulse is by its nature restricted, adapted only to

whether of his own accord or at the instance of others, he, or rather his muscles, did just the contrary. If he would look to the right, his eyes turned to the left; and this anomaly extended to all his movements. It was simply a contra-direction of movement without any mental derangement, and it differed in this from involuntary movements, that he never produced a movement save when he willed it, though the movement was always the reverse of what he willed."

* We might show, were this the place, how fickle a thing is the unity of the Ego and how unreliable. In these cases of conflict which is the true Ego, that which acts or that which resists? If you decide in favor of neither, then there are two Egos. If you decide in favor of either, you must admit that the preferred group represents the Ego about as in politics the party that is slightly in the majority represents the state. But these questions cannot be discussed incidentally. I hope some day to devote a monograph to them.

the present and to a very small number of circumstances, while rational activity on the other hand transcends the present and is adapted to a great number of circumstances.

It must be admitted, though language does not lend itself readily to such a form of expression, that the will, like the intelligence, has its idiots and its geniuses, with all the degrees intermediate between these two. From this point of view the cases cited in the first group (impulses not attended by consciousness) would represent will-idiocy, or, in more precise language, will-dementia; the facts of the second group would exhibit a weakness of will analogous to weakness of intellect.

Pursuing our research, we must now pass to an analysis of the facts and must determine their causes. Is it possible to ascertain the conditions upon which this weakening of the higher activity depends? First of all we have to inquire whether the overthrow of the will is an effect of the predominance of the reflex actions, or whether on the contrary it is the cause of that predominance: in other words, whether the weakening of the will is the primary or the secondary fact. This question admits of no general answer. Observation shows that both propositions are true with respect to different cases, and consequently we can give only a special answer for a special case whose circumstances are fully known. No doubt oftentimes the irresistible impulse is the *origo mali*: it constitutes a permanent pathological state. There is then produced in the psychological order a phenomenon analogous to hypertrophy of an organ, or to the overproliferation of a tissue, as for example that which leads to the formation of certain forms of cancer. In both instances, whether the physiological or the psychological, this vicious development makes itself felt throughout the entire organism.

The cases wherein voluntary activity is affected directly and not as an indirect effect, are of most interest for us. What takes place in such cases? Is it the power of coördination or the power of inhibition that is affected, or both? An obscure point upon which only a conjecture may be offered. To obtain some light upon it, let us investigate two new groups of facts, viz., the artificial and momentary impairment of the will produced by intoxication; and the chronic impairment produced by lesion of the brain.

As every one knows, the intoxication caused by alcoholic liquors, by hashish,

by opium, after a first period of superexcitation brings about a notable impairment of the will. The individual is more or less conscious of this: other persons see it more distinctly. Soon—especially under the influence of alcohol—impulsions become excessive. The extravagances, violences and crimes committed in this state are innumerable. The mechanism of the onset of intoxication is subject of warm controversy. It is generally supposed that it begins with the brain, later acting upon the spinal cord and the medulla, and lastly upon the great sympathetic. There is produced an intellectual hebetude—that is to say, the states of consciousness are vague, indefinite, of little intensity: the physiopsychological activity of the brain is reduced. This decline of activity extends also to the motor power. Obersteiner has proved by experiments that under the influence of alcohol one reacts less promptly, though he imagines that the contrary is the fact.* It is not the ideation alone that is affected but also the ideomotor activity. At the same time the power of coördination becomes null or ephemeral and forceless. Now since coördination consists both in converging certain impulsions toward an end and in directing impulsions that are useless or antagonistic to that end, it follows from the fact that the reflex actions are excessive or violent in any case, that the power of inhibition—whatever may be its nature and mechanism—is impaired, and that its part in constituting and maintaining will-action is all-essential.

The pathology of the brain affords other confirmatory facts, all the more striking because they show a sudden and permanent change in the individual. Ferrier and other writers cite cases where lesion of the frontal convolutions, especially the first and second, led to almost total loss of will, and reduced the patient to automatism, or at least to that state wherein the instinctive activity reigns almost alone, without possibility of inhibition.

An infant was wounded by a knife in the frontal lobe. Seventeen years afterward his physical health was good, "but he was incapable of occupations that demanded mental exertion. He was irritable, especially when he drank intoxicating

* "Brain," Jan., 1879. A considerable number of experiments have been made with respect to this point, with uniform results. See Exner, in "Pflüger's Archiv," 1873; Dietl and Vintschgau, *ibidem* 1877; also an account of an important research made by Kræpelin in Wundt's psychophysiological laboratory, published in "Philosophische Studien," pp. 573 seqq.

liquor or when he was under any extraordinary excitement." A patient of Lepine's suffering from an abscess in the right frontal lobe "was in a state of hebetude. He seemed to understand what was said to him, but only with difficulty could he pronounce a word. On being bidden he would sit down; raise him from the chair and he could walk a few steps unassisted." A man who had received a violent blow which destroyed the greater part of the first and second frontal convolutions "lost all will-power. He understood what was said and acted as he was bid to act, but in an automatic, mechanical way."

Many similar cases are on record,* but the one which is most important for us is that of the "American carrier." A bar of iron shot from a mine passed through his skull, injuring only the præ-frontal region. He recovered and survived the accident twelve years and a half; but of the patient's mental state after recovery the following particulars are given: His employers, who before the accident regarded him as one of their best foremen, found him so changed that they could not restore him to his former position. The equilibrium, the balance between his intellectual faculties and his instinctive tendencies, seemed to have been destroyed. He had become nervous, disrespectful and grossly profane. He showed now but little politeness to his equals, was impatient of contradiction, and would listen to no advice that ran counter to his own ideas. At times he was exceedingly obstinate, though capricious and indecisive. He would make plans for the future, and forthwith reject them and adopt others. He was a child intellectually, a man in passions and instincts. Before the accident, though he had not received a school education, he had a well-balanced mind, and was regarded as a man of good natural ability, sagacious, energetic and persevering. In all these respects he was now so changed that his friends said they no longer recognized him.†

In this case we see the will impaired in proportion as the inferior activity becomes stronger. Furthermore we have here an *experiment*, for here is a sudden change brought about by an accident under clearly defined circumstances.

It is to be regretted that we have not many observations of this kind, for with their aid a great deal might be done

toward the interpretation of the diseases of the will. Unfortunately the researches so vigorously prosecuted with regard to localization of functions in the brain have had to do mostly with the motor and the sensorial regions, and these, as we know, occupy only a portion of the frontal region. So too there is need of a critical examination of the opposite class of facts, those namely which go to show that though the brain has suffered lesion, the will-power is apparently undiminished. This work accomplished, then Ferrier's theory that there exist in the frontal lobes centers of inhibition for the intellectual operations, would assume greater consistence and would supply a solid basis for the determination of the causes. As things stand, we may not attempt anything beyond conjectures.

When we compare the case of aboulia with that of the existence of irresistible impulses, we see that in the two cases will is in default owing to totally opposite conditions. In the one case the intelligence is intact, but impulsion is wanting; in the other, the power of coördination and of inhibition being absent, the impulse expends itself in purely automatic fashion.

CHAPTER IV.

IMPAIRMENT OF VOLUNTARY ATTENTION.

WE are now to study impairment of the will in a less striking form, namely, impairment of the power of *voluntary attention*. This does not in its essence differ from the impairments belonging to the group we have just been considering, since like them it consists in an impairment of the power of directing and of adaptation. It is a diminution of will-power in the strictest, straitest, and narrowest sense of the term, and it is indisputable even in the eyes of those who restrict themselves most obstinately to interior observation.

Before we turn our attention to acquired impairment, let us consider *congenital* impairment of voluntary attention. We will take no note of narrow or mediocre minds, in which feelings, intelligence and will are at one dead level of weakness. It is more interesting to study a great mind, some man gifted with high intelligence, with a quick sensibility, but who lacks the power of direction: thus we shall see a perfect contrast between thought and will. We have in Coleridge an instance of this.

* See Huxley's essay on "Animal Automatism." It will be published in No. 53 HUMBOLDT LIBRARY.
 † Ferrier, "Localization of Diseases of the Brain."

* There was probably no man of his time or perhaps of any time who surpassed Coleridge," says Dr. Carpenter,* "in the combination of the reasoning powers of the philosopher with the imagination of the poet and the inspiration of the seer; and there was perhaps not one of the last generation who has left so strong an impress of himself in the subsequent course of thought of reflective minds engaged in the highest subjects of human contemplation. And yet there was probably never a man endowed with such remarkable gifts who accomplished so little that was worthy of them, the great defect of his character being the want of Will to turn his gifts to account; so that with numerous gigantic projects constantly floating in his mind, he never brought himself even seriously to attempt to execute any of them. It used to be said of him that whenever either natural obligation or voluntary undertaking made it his duty to do anything, the fact seemed a sufficient reason for his not doing it. Thus at the very outset of his career, when he had found a bookseller generous enough to promise him thirty guineas for poems which he recited to him, and might have received the whole sum immediately on delivering the manuscript, he went on week after week begging and borrowing for his daily needs in the most humiliating manner, until he had drawn from his patron the whole of the promised purchase money, without supplying him with a line of that poetry which he had only to write down to free himself from obligation. The habit of recourse to nervine stimulants (alcohol and opium) which he early formed and from which he never seemed able to free himself doubtless still further weakened his power of volitional self-control, so that it became necessary for his welfare that he should yield himself to the control of others.

"The composition of the poetical fragment 'Kubla Khan' in his sleep, as told in his 'Biographia Litteraria,' is a typical example of automatic mental action. He fell asleep whilst reading the passage in 'Purchas's Pilgrimage' in which the 'stately pleasure house' is mentioned, and on awaking he felt as if he had composed from two to three hundred lines, which he had nothing to do but to write down, 'the images rising up as things, with a parallel production of the correspondent expressions, without any sensation or consciousness of effort.' The whole of this singular fragment as it stands, consisting of fifty-four lines, was written as fast as his pen could trace the words; but having been interrupted by a person on business who stayed with him above an hour, he found to his surprise and mortification that 'though he still retained some vague and dim recollection of the general purport of the vision, yet with the exception of some eight or ten scattered lines and images, all the rest had passed away like the images on the surface of a stream into which a stone has been cast,

but, alas! without the after-restoration of the latter.'"

Dr. Carpenter then quotes the description of Coleridge given in Chapter VII. of Carlyle's "Life of John Sterling":

"Coleridge's whole figure and air, good and amiable, otherwise, might be called flabby and irresolute, expressive of weakness under possibility of strength. He hung loosely on his limbs, with knees bent and stooping attitude. In walking he rather shuffled than decisively stepped; and a lady once remarked he never could fix which side of the garden walk would suit him best, but continually shifted in corkscrew fashion and kept trying both.

"Nothing could be more copious than his talk; and furthermore it was always virtually or literally of the nature of a monologue; suffering no interruption however reverent: hastily putting aside all foreign additions, annotations or most ingenious desires for elucidation as well-meant superfluities which would never do. Besides it was talk not flowing any whither like a river, but spreading everywhere in inextricable currents and regurgitations like a lake or sea; terribly deficient in definite goal or aim, nay, often in logical intelligibility; *what* you were to believe or do on any earthly or heavenly thing, obstinately refusing to appear from it. So that most times you felt logically lost, swamped, near to drowning in this tide of ingenious vocables spreading out boundless as if to submerge the world.

"He began anywhere. You put some question to him, made some suggestive observation; instead of answering this or decidedly setting out toward answering it, he would accumulate formidable apparatus, logical swim-bladders, transcendental life-preservers and other precautionary and vehicular gear for setting out; perhaps did at last get under way, but was swiftly solicited, turned aside by the glance of some radiant new game on this side or that into new courses and ever into new, and before long into all the universe, where it was uncertain what game you would catch or whether any. His talk, alas! was distinguished like himself by irresolution: it disliked to be troubled with conditions, abstinences, definite fulfillments; loved to wander at its own sweet will and make its auditor and his claims and humble wishes a mere passive bucket for itself.

"Glorious islets too, balmy, sunny islets of the blest and the intelligible I have seen rise out of the haze, but they were few and soon swallowed in the general element again.

"Eloquent, artistically expressive words you always had; piercing radiances of a most subtle insight came at intervals; tones of noble pious sympathy, recognizable as pious though strangely colored, were never wanting long; but in general you could not call this aimless, cloud-rapt, cloud-based,

* "Mental Physiology," pp. 266-7.

lawlessly meandering human discourse of reason by the name of 'excellent talk,' but only of 'surprising,' and were bitterly reminded of Hazlitt's account of it: 'Excellent talker, very—if you let him start from no premises and come to no conclusion.'"

We now turn to familiar instances of *acquired* impairment of voluntary attention. It occurs in two forms. The first is characterized by excessive intellectual activity, superabundance of states of consciousness and abnormal production of feelings and ideas in a given time, as we have seen when speaking of alcoholic intoxication. This exuberance of cerebral activity is more noticeable still in the more intellectual intoxication produced by hashish and opium. The individual feels himself to be overwhelmed by the irresistible tide of his ideas, and language is too slow to render the rapidity of his thoughts; but at the same time the power of directing the course of his ideas becomes weaker and weaker, and the lucid moments shorter and shorter.* This state of psychic exuberance, whatever its cause,—fever, cerebral anæmia, emotion—always has the same result.

Between this state and attention there is a perfect antagonism: one excludes the other. We have here in fact only a special case of excessive reflex action, only that here we have to do with psychic reflex action. In other words all states of consciousness tend to expend themselves, and this they can do only in two ways, either by producing a movement, an act; or by calling forth other states of consciousness, according to the law of association. The latter process is a case of reflex action of a complex kind—psychic reflex action—but like physiological reflex action it is only a form of automatism.

The second form brings us back to the type of *aboulia*. It consists in a progressive diminution of the directive power and eventual impossibility of intellectual effort.

"In the incipient stage of disease of the brain," says Forbes Winslow,† "the patient complains of an incapacity to control and direct the faculty of attention. He finds he cannot without an obvious and painful effort accomplish his usual mental work, read or master the contents of a letter, newspaper or even a page or two of a favorite book. The ideas become restive and the mind lapses into a flighty condition, exhibiting no capacity for continuity of thought.

* Moreau, "Du Hashish et de l'Aliénation Mentale," p. 60; Richet, "Les Poisons de l'Intelligence," p. 71.

† "On Some Obscure Diseases of the Brain and Mind," chap. xii.

"Fully recognizing his impaired and failing energies, the patient repeatedly tries to conquer the defect, and seizing hold of a book, is resolved not to succumb to his sensations of intellectual incapacity, physical languor and cerebral weakness; but he often discovers (when it is too late to grapple with the mischief) that he has lost all power of healthy mental steadiness, normal concentration, or coördination of thought. In his attempt to comprehend the meaning of the immediate subject under contemplation, he reads and re-reads with a determined resolution, and apparently unflagging energy, certain striking passages and pages of a particular book, but without being able to grasp the simplest chain of thought, or follow successfully an elementary process of reasoning; neither is he in a condition of mind fitting him to comprehend or retain for many consecutive seconds the outline of an interesting story, understand a simple calculation of figures or narrative of facts. The attempt, particularly if it be a sustained one, to master and converge the attention to the subject which he is trying to seize, very frequently increases the pre-existing confusion of mind, producing eventually physical sensations of brain lassitude and headache."

Many general paralytics, after passing through the period of intellectual over-activity—the period of gigantic projects, of immoderate purchases, of purposeless voyages, of incessant loquacity, during which the will is dominated by the reflex actions, reach later the period when it is impotent from atonicity: effort persists but for a moment, till at last this ever increasing passivity ends in dementia.*

The reader sees without any commentary that the diseases of voluntary attention are reducible to the types already considered. It will be best therefore without citing any further instances to inquire what instruction may be derived from that state of the mind called attention, as to the nature of the will, and what suggestions bearing upon the present research. For this purpose it is not necessary that we make a study of attention, however interesting, however ill-understood that subject may be. The question

* Of this class of patients some, but they are few pass through a period of struggle which shows wherein the will is master and how it eventually succumbs. "I have seen at Bicêtre," says Billod, "a general paralytic whose *délire des grands* was of the most ultra type, escape from the establishment and go barefoot through a driving rain storm and in the middle of the night from Bicêtre to Batignolles. The patient remained outside for a whole year, during which he struggled with all his will against his intellectual delirium, knowing well that should he betray the first symptom of insanity, he would be sent back to Bicêtre. He came back nevertheless. I have met with several other instances of soundness of will persisting for a considerable time in general paralytics."

can be considered here only in part, that is so far as it concerns the will. I shall restrict my conclusions upon this point to the following propositions:

1. Voluntary attention, which is commonly credited with marvelous feats, is only an imitation, artificial, instable and precarious, of spontaneous attention.

2. The latter alone is natural and effective.

3. It depends, as regards its origin and its permanence, upon certain affective states, upon the presence of agreeable or disagreeable *feelings*: in a word it is sensitive in its origin, and hence allied to the reflex actions.

4. The inhibiting action appears to play an important but as yet indefinable part in the mechanism of attention.

To establish these propositions it is well first to examine spontaneous attention, considering it in all its different forms. The crouching animal watching its prey; the child intently gazing at a commonplace spectacle; the assassin awaiting his victim in a nook of a wood—here the mental image takes the place of the real object; the poet contemplating an inward vision; the mathematician studying out the solution of a problem:* all present essentially the same interior and exterior characters.

With Sergi I define the state of intense spontaneous attention to be a differentiation of perception producing greater psychic energy in some of the nerve centers, and a sort of temporary catalepsy in other centers.† But I have not to study attention in itself, only to determine its origin, its cause.

Plainly in the states above enumerated and in their analogues, the true cause is an affective state, a feeling of pleasure, love, hate, curiosity: in short a state more or less complex, agreeable, disagreeable or mixed. Because the prey, the spectacle, the thought of the victim, the problem to be solved produce in the animal, the child, the assassin, the mathematician, an emotion that is intense and sufficiently durable, they are attentive. Eliminate emotion, and all is gone: but while emotion lasts, so does attention. The *modus operandi* is as in those reflex actions which seem to be continuous, because an excitation that is incessantly repeated and which

is ever the same keeps them up till nervous exhaustion is produced.

Is a counter proof required? Observe the incapacity for protracted attention of children, women, and in general those of inferior mental force. The reason is that objects awaken in them only superficial, instable feelings, and they are quite inattentive to high, complex, profound questions, for these do not touch their emotions. On the other hand they are attentive to trifles, for these interest them. I might add that the orator and the writer hold the attention of their public by addressing their feelings. Look at the matter from whatever side, and the same conclusion is inevitable; nor would I dwell upon so evident a fact were it not that the authors who have studied the subject of attention seem to have forgotten this all-important influence.

Spontaneous attention gives a maximum effect with a minimum of effort, while voluntary attention gives a minimum effect with a maximum of effort, and the contrast between the two is sharper in proportion as the one is more spontaneous and the other more voluntary. Voluntary attention in its highest degree is an artificial state in which with the aid of factitious emotion we keep up certain states of consciousness that are ever tending to die out—for instance when for politeness' sake we carry on a wearisome conversation. In the case of spontaneous attention it is our own individuality that produces this specialization of consciousness; in voluntary attention it is an exceedingly limited portion of our individuality. Many questions suggest themselves here, but as I have already said, I have only to study attention in itself. I had simply to show—and this point I hope is beyond controversy—that attention is by its origin of the nature of reflex action; that under the form of spontaneous attention it possesses the regularity of the reflex actions and their potency of action; but that in both cases it is a sensitive excitation that causes it, keeps it up, and measures its intensity.

Again we see that the voluntary rests upon the involuntary and derives from it all its force, and that, compared with the latter, it is very precarious. Education of the power of attention consists in the last resort simply in calling out and developing these factitious emotions, and in striving to make them stable by repetition; but as there is no creation *ex nihilo*, they must have some basis however weak in nature. To conclude as regards this point, I confess that for my part I accept the paradox

* Of course we speak of poets and mathematicians that are such by nature, not by education.

† Sergi, "Teoria Fisiologica della Percezione." See also Lewes, "Problems of Life and Mind," Third Series; Maudsley, "Physiology of Mind;" Wundt, "Grundzüge der Physiologischen Psychologie;" Ferrier, "The Functions of the Brain."

of Helvetius so often disputed, that "all intellectual differences between one man and another spring only from attention," with the proviso that attention here be taken to mean spontaneous attention alone: but then the dictum amounts only to this, that the differences between men are innate and natural.

Having shown how attention is produced, we have next to inquire how it is kept up. The difficulty is with voluntary attention only, for, as we have seen, spontaneous attention explains itself. It is continuous because the excitation which causes it is continuous. On the other hand, the more voluntary it is, the more effort does attention require, and the more instable is it. The two cases are in effect a struggle between states of consciousness. In the first case (spontaneous attention) a state of consciousness—or rather a group of states of consciousness—possesses such intensity that no struggle against it is possible, and it assumes the mastery by sheer force. In the second case (voluntary attention) the group of states of consciousness is not of sufficient intensity to dominate competing states, and it gets the upper hand only by the aid of an additional force, namely, by the intervention of the will.

By what mechanism does attention act? Apparently by an inhibition of movements. Thus we are brought back to the problem of inhibition, more involved in obscurity here than anywhere else. Let us see what is to be learned upon this point. In the first place it is hardly necessary to repeat that the brain is a motor organ, that is to say that many of its elements have for their function to produce motion, and that there is hardly a single state of consciousness which does not contain in some degree motor elements. It follows that every state of attention implies the existence of these elements. "In movements of the limbs and trunk the feelings of operation are very conspicuous; they are less so in the delicate adjustments of the eye, ear, etc., and are only inductively recognizable in the still more delicate adjustments of attention and comprehension, which are also acts of the mind in more than a metaphorical sense. . . . The purest intellectual combinations involve motor impulses (feelings of operation) quite as necessarily as the combination of muscles in manipulation. The feelings of effort and relief in seeking and finding our way through an obscure and tangled mass of ideas—the tentatives of hypothesis and induction—are but fainter forms of the feelings in

seeking and finding our way along a dark road or thick forest, checked by failure and enlightened by every successful step."*

Again every state of consciousness, particularly when it is highly intense, tends to pass into movements; and so soon as it enters its motor phase, it loses its intensity, it is in decline, it tends to disappear out of the consciousness. But a state of consciousness has another way of expending itself: it may transmit its tension to other states through the mechanism of association—an expenditure inward, if you please, in lieu of an expenditure outward. But association does not proceed in one fashion only. In spontaneous attention certain associations gain the mastery themselves alone, and by themselves alone, in virtue of their own intensity. In voluntary attention—of which reflection is the highest form—we are conscious of a radiation in different directions; and in cases where we have much difficulty in being attentive, the associations which have the upper hand are those which we do not wish, that is to say those which are not chosen, not affirmed as the ones that ought to be kept up.

By what means then are the weaker associations maintained? In order to get as clear an idea as may be of the process, let us consider some analogous phenomena, though of a less abstruse kind. A man is learning to play a musical instrument, or to handle a tool, or better still, a child is learning to write. At first he makes many movements that are quite useless: he keeps moving his tongue, his head, his legs, and only by degrees does he learn to hold his members in subjection, and to confine himself to the required movements of the hands and the eyes.

In voluntary attention the process is similar. The associations which go out in all directions may be likened to these useless motions. The problem in both cases is to substitute a limited for an unlimited association. For this purpose, we eliminate all associations not helpful to the end we have in view. Properly speaking, we do not suppress states of consciousness, but we do prevent their surviving to call forth like states and to increase and multiply at pleasure. As every one knows the attempt to do this often fails and is always laborious, and while we check divagation, the available nerve force is economized to our advantage, for

* G. H. Lewes, "Problems of Life and Mind," 3d Series cont'd, page 397.

to lessen purposeless diffusion is to increase useful concentration.

Such is the idea we may form of this obscure phenomenon when we strive to get at its mechanism, instead of having recourse to any supposed "faculty" of attention, which explains nothing. Still we must admit with Ferrier that "on what physiological basis this psychological faculty rests is an extremely difficult question, and is one scarcely capable of experimental determination."* We would add that the foregoing remarks do not pretend to be an explication, but only an approximation.

CHAPTER V.

THE REALM OF CAPRICE.

To will is to choose in order to act: such is for us the formula of normal will. The anomalies so far considered may be classed in two great groups: in one impulsion is absent, and no tendency to act appears (aboulia); in the other a too rapid or too intense impulsion prevents the act of choice. Before we consider instances of extinction of the will, where there is neither choice nor acts, let us study a type of character in which either the will is not formed at all or at best exists only in an extremely instable and inefficient form. The best instance of this is seen in the hysterical constitution. Properly speaking we find here rather a constitutional state than a mere derangement. A simple irresistible impulse is like an acute disease; permanent and invincible impulses are like a chronic malady; but the hysterical character is a diathesis. It is a state in which the conditions of volition are nearly always lacking. From the description recently given by Dr. Huchard of the characters of hysterical subjects I take the following particulars bearing upon our subject:

"One prominent trait of their character is mobility. From day to day, from hour to hour, from minute to minute they pass with incredible rapidity from joy to sadness, from laughter to tears. Changeable, freakish or capricious, at one moment they talk with amazing loquacity, but the next they are gloomy and taciturn, have not a word to say, being lost in reverie or plunged in profound depression. Then they are possessed by a vague indefinable feeling of sadness ac-

companied by a choking sensation and oppression in the epigastric region. They have fits of sobbing, and seek to hide their tears in solitude; again on the other hand they have outbursts of immoderate laughter, without sufficient cause. 'They behave,' says Ch. Richet, 'like children who oftentimes can be made to laugh heartily, while their cheeks are still wet with the tears they have shed.'

"Their character changes like the views of a kaleidoscope, a fact which led Sydenham justly to remark that inconstancy is their most constant trait. Yesterday they were joyous, amiable, gracious: to-day they are ill-humored, touchy, irascible, vexed by every trifle, testy and snappish, dissatisfied with everything; nothing interests them, they are tired of life. They conceive a strong antipathy to-day toward the person they esteemed and loved yesterday, or *vice versa*, and they are as zealous to hate certain persons now as before they were eager to show them every mark of affection.

"Sometimes their sensibility is aroused by a most trivial cause, while the profounder emotions scarcely touch it: they are indifferent, unmoved by the recital of a real sorrow, while they shed abundant tears and give themselves up to despair on account of some harmless speech that they misinterpret, or some trivial pleasantry that they transform into an affront. This *moral ataxy* is exhibited even with regard to their nearest interests. One hysterical subject will be entirely indifferent about the conduct of her husband; another will be heedless of the danger that threatens her fortunes. By turns they are gentle or violent, says Moreau of Tours, kind or cruel; impressionable to excess; rarely master of the first movement of passion; incapable of resisting impulses of the most opposite kinds; they show a lack of equilibrium between the higher moral faculties—will, conscience,—and the lower faculties—instincts, passions and desires.

"This extreme mobility in their state of mind and their affectional disposition, this instability of character, this want of fixedness, this absence of stability in their ideas and volitions, explains their incapacity to keep the attention long fixed upon a book, a study or a task of any kind whatever.

"All these changes take place with great rapidity. In hysterical subjects the impulsions are not altogether free from control by the intelligence, as they are in epileptics, but they are quickly followed by acts. This is the explanation of those sudden movements of anger and indignation, those outbursts of enthusiasm, those fits of desperation; the mad gaiety, the sudden affectionateness or the equally sudden transports of wrath during which they stamp the floor like spoiled children, break the furniture, and so on.

"Hysterical women are governed by the passions. Nearly all the different phases of their character, of their mental state, may be summed up in these words: they know not how to will, they cannot will, they will not will. Just because their will is ever waver-

* "Functions of the Brain." The two paragraphs devoted to this question will be read with profit.

ing and tottering; because it is ever in a state of instable equilibrium; because it turns like the weather vane to the slightest gust: for all these reasons do hysterical subjects show such variableness, such inconstancy in their desires, their ideas and their affections."*

Having reproduced this faithful portrait we may abridge our comments. The reader has here placed before his eyes this state of incoördination, of broken equilibrium, of anarchy and of "moral ataxy;" but it still remains for us to justify the assertion made at the beginning of this chapter, that we see here a constitutional impotence of will; that the will cannot exist here because the conditions of its existence are wanting. For clearness's sake, I will anticipate what will be established by proofs and in fuller detail when I sum up the conclusions of the work.

If we take an adult person endowed with an average will, we find that his activity (that is to say his power to produce acts) is of three degrees. In the lowest degree are automatic acts, simple or composite reflex actions, habits; next above these come the acts produced by the feelings, the emotions and the passions; highest of all the acts dictated by reason. These last presuppose the other two, rest upon them and consequently depend upon them, though they give to them coördination and unity. Capricious characters, of which the hysterical character is the type, possess only the two lower forms; the third is as it were atrophied. The rational activity is by nature, the very rare exceptions apart, always the weakest. It becomes predominant only on condition that the ideas in the mind call into action certain feelings that are far more apt than ideas to pass into acts. As we have seen, the more abstract an idea, the weaker is its motor tendency. In subjects of hysteria the regulative ideas either do not come into being at all, or they remain simply theoretic concepts. It is because certain ideas, as those of utility, convenience, duty and the like remain in this state of theoretic conceptions, that they are not *felt* by the individual, that they produce in him no affectional reverberation, so to speak, that they do not enter into his moral fiber but remain as it were a foreign element: hence they are without action; hence they are practically as though they did not exist.

The individual's power of acting is maimed and imperfect. The tendency of the feelings and passions to pass into acts is doubly strong, both in itself and because there is nothing above it to hamper it or to be a counterpoise to it. And as it is the characteristic of the feelings as of the reflex actions to go straight to their object, and to have an adaptation in one direction only—unilateral, whereas rational adaptation is multilateral,—the desires, rapidly conceived and immediately satisfied, leave the ground free for other desires whether like or opposite, according to the ever changing whims of the individual. There is nothing but caprice, or at most velleity, the merest simulacrum of volition.

Still the fact that desire proceeds only in one direction and tends to expend itself unchecked, does not explain the instability of the hysteric character nor its lack of will. If a desire that is ever satisfied is ever recurring, there is stability. The predominance of the affectional life does not of necessity preclude will: indeed a passion intense, stable, consented to is the very basis of an energetic will. Such passion we find in men of great ambition—in the martyr whose faith is not to be shaken; in the redskin who in the midst of his tortures defies his enemies. We must search deeper therefore for the cause of the instability found in the hysteric character; and this cause cannot be anything else but a state of the individuality, that is, in the last resort, of the organism. We say that will is strong whose aim, whatever it be, is fixed. If circumstances change, means are changed: adaptations are successively made, in view of new environments; but the center toward which all converges does not change. Its stability expresses the permanency of character in the individual. If the same end is ever chosen, approved, the reason is that the individual continues to be the same. But suppose an organism with instable functions, whose unity—which is simply a *consensus*—is ever in process of dissolution and reconstitution upon a new plan according to the sudden variations of the functions that make it up. clearly in such a case choice can hardly exist and cannot be enduring: there are only velleities and caprices. This is what takes place in subjects of hysteria. The instability is a fact: its cause is very probably to be found in functional disorders. Anæsthesia of the special senses or of the general sensibility, hyperæsthesia, derangement of the motor apparatus, contraction of muscles, convul-

* Axenfeld et Huchard, "Traité des Nevroses," 2d edition, 1881, pp. 958-971.

sions, paralysis, derangement of the vasomotor, secretory and other functions—all of these causes occurring successively or simultaneously, keep the organism constantly in a state of instable equilibrium; and the character, which is only the psychic expression of the organism, varies in the same degree. For a stable character to rest upon so wavering a base were a miracle. Here therefore we see the true cause of the impotence of will, and this impotence is, as we have said, constitutional.

Certain facts, while they seem to conflict with this theory, only give confirmation to it. Hysterical patients are sometimes possessed by a *fixed* idea, of which it is impossible to disabuse them. One refuses to eat, another to speak, a third to use her eyes, on the ground that the work of digestion or the exercise of the vocal or the visual organs would, as they imagine, cause them pain. More frequently we find the species of paralysis known as "psychic" or "ideal." The patient remains abed for weeks, months or even years, in the belief that she is unable to stand or to walk. Some moral shock, or simply the influence of some one who possesses her confidence, or who acts with authority effects a cure. One betakes herself to her feet at the alarm of fire; another rises from her bed and goes to meet her long-absent brother; a third decides to partake of food out of fear of her physician. Briquet, in his "*Traité de l'Hystérie*," mentions several cases of women whom he cured by inspiring them with faith in their recovery. We might quote many of those so-called miraculous cures which have amused the curiosity of the public from the time of the deacon Pâris to our own day.

The physiological causes of this sort of paralysis are subject of keen disputation. Looking at it from the psychological point of view, we recognize the existence of a fixed idea the result of which is an inhibition. Now since an idea does not exist of itself, nor without certain cerebral conditions, and since it is only a part of a psychophysiological whole—the conscious part—it must correspond to an abnormal state of the organism, of the motor centers perhaps, and thence it must have its origin. However that may be, there is no "exaltation" of the will, as some physicians have stoutly contended: on the contrary there is absence of will. We come again upon a morbid type that we have already studied, differing from that only in form: it is inhibitory. But there

is no reaction springing direct from the individual, against the fixed idea. It is an influence from without that interposes and produces an opposite state of consciousness, with the concomitant feelings and physiological states. The result of this is a strong impulsion to act, which suppresses and takes the place of the state of inhibition: but it is hardly a volition: at best it is a volition produced with the assistance of others.

The conclusion to which we are led by these phenomena is, again, that the conditions of will are wanting, and will cannot exist.

CHAPTER VI.

EXTINCTION OF THE WILL.

THE cases of extinction of the will, which we are now to study, are those in which there is neither choice nor action. When the whole psychic activity is, or seems to be completely suspended, as in deep sleep, in artificial anaesthesia, in coma and similar states, there is a return to the vegetative life. Of this we will not treat: the will disappears because all psychic life disappears. We have to do here with cases where one form of mental activity continues, though there remains no possibility of choice followed by act. This extinction of the will is seen in ecstasy and in somnambulism.

Authors distinguish divers kinds of ecstasy—as mystic, morbid, physiological, cataleptic, somnambolic, and so forth. These distinctions are of no consequence here, for at bottom the mental state is the same in all the forms. Most ecstasists reach the ecstatic condition naturally, in virtue of their physical constitution; but others assist nature by artificial processes. The religious and philosophical literature of the Orient, India particularly, abounds in writings from which it has been possible to compile a sort of working manual showing how to bring about ecstasy. To stand motionless; to gaze fixedly at the sky, or a luminous object, on the tip of the nose, or on one's navel (after the manner of the monks of Mt. Athos hence called *Omphalopsychi*); to repeat continually the monosyllable OM (Brahm) contemplating the while the supreme being; to "hold in the breath," *i.e.* to retard respiration; "to have no heed of time or place:" such are the acts which "cause one to be like

unto the placid light of a lamp set in a place where the wind blows not."*

Having attained this state the ecstasist presents certain physical characters; now he is motionless and mute; anon he interprets the vision that holds him entranced, by speech and song and gesture. Seldom does he quit the spot where he stands. His physiognomy is expressive, but his eyes though open see not. Sounds no longer reach his sense, save in some cases the voice of a particular person. The general sensibility is gone: he feels no contact: neither pricking nor burning causes pain.

What he feels inwardly the ecstasist alone may tell, and were it not that at waking he retains a very distinct recollection of it, the profane would have to rely on inductions. The speeches and the writings of ecstasists show striking uniformity amid differences of race, of belief, of mental constitution, of time and of place. Their mental state is reduced to one image-idea standing either isolated or as the center of a single group which engrosses the entire consciousness and maintains itself there with extreme intensity. Many mystics have described this state with great precision, and above all St. Theresa. I take a few passages from her autobiography in order thus to place before the reader an authentic description of ecstasy.

In communion with God there are four degrees of "prayer," which she compares to four ways of watering a garden, "the first by drawing the water by main force out of a well: this is sheer hard work; the second, by drawing it by means of a *noria* (Persian wheel)—in this way one obtains more water with less fatigue; the third, by conducting the water from some river or brook; the fourth and incomparably the easiest is an abundant fall of rain, God himself undertaking to water the garden without the slightest fatigue on our part."

* "Bhagavad Gita," VI. The Buddhist teachers say that there are four degrees in the contemplation which leads to the earthly *nirvāna*. The first degree is the inward feeling of happiness which springs up in the soul of the ascetic when he declares himself to have at length come to distinguish the nature of things. The *yoghi* is then detached from all other desire save the *nirvāna*: he still exercises judgment and reason; his intelligence is all centered on the *nirvāna*, and feels only the pleasure of inner satisfaction, without judging of it, without even understanding it.

In the third degree, the pleasure of satisfaction is gone, and the sage is indifferent about the felicity which his intelligence still experiences. The sole pleasure that remains for him is a vague sense of physical well-being, obscure and all as it is; he has also lost all memory; he has lost even the sense of his indifference. Free of all pleasure and of all pain, he has attained impassibility: he is as near to *nirvāna* as he can be in this life. (Barth. Saint-Hilaire, "Le Bouddha et sa Religion," pp. 136, 137.)

In the first two degrees there are as yet only the rudiments of ecstasy, as she observes in passing: "Sometimes while reading I would suddenly experience a sense of the presence of God. It is utterly impossible for me to doubt that he was within me or that I was quite lost in him. This was not a Vision. . . . It suspends the soul in such a way that it seems to be quite outside of itself. The will loves, the memory to me appears almost lost, the understanding acts not at all, yet it is not lost." In a higher degree which is "neither a ravishment nor a spiritual sleep," "the will alone acts and, not knowing how it is made captive, gives simply to God its consent, that he may imprison it, in the assurance that it becomes the thrall of him whom it loves. . . . The understanding and memory come to the assistance of the will, to the end it may become more and more capable of enjoying so great a good. Sometimes however their aid serves only to disturb the will, in this close union with God. But then the will, not suffering itself to be disturbed by their importunity, must cleave to the delights and to the profound calm which it is enjoying. The attempt to exercise these other two powers [faculties] would lead the will astray with them. They are then like doves which, dissatisfied with the food provided for them by their master without any exertion on their part, go in search of other food, but which, after seeking in vain, make haste to return to the dove-cote." In this degree "I look on it as a great advantage, when writing, to find myself in the prayer of which I am speaking, for I then see clearly that neither the expression nor the thought comes from me; and after it has been written, I cannot understand how I could ever have done it: this happens to me often."

In the third degree we have the ecstasy:

"This state is a sleep of the powers [faculties] wherein, though not altogether lost in God, they nevertheless know not how they operate. . . . It is as though one who longs for death were already holding in his hand the blessed candle, and had but to draw one breath more to attain the fulfillment of his longings. It is for the soul an agony full of inexpressible delights, wherein it feels itself dying almost entirely to all the things of the world, and reposes with rapture in the enjoyment of its God. No other terms do I find to portray or to explain what I experience. In this state the soul knows not what to do: knows not whether it is speaking or is silent whether it laughs or weeps: it is a glorious delirium, a heavenly madness, a supremely delicious mode of enjoyment. . . . And while it

thus searches for its God, the soul feels with a very lively and a very sweet pleasure that it is fainting almost quite away: it falls into a sort of swoon which little by little deprives the body of respiration and of all its strength. It is unable without a very laborious effort to make the slightest movement of the hands. The eyes close without any purpose of the soul to shut them; and if it keeps them open it sees almost nothing. It is incapable of reading, even if it would; it sees indeed the letters, but can neither distinguish them nor assemble them. When spoken to it hears the sound of the speaker's voice, but no distinct words. So too it receives no service of its senses. . . . All its outer strength departs: conscious that thereby its own strength is increased, it can the better enjoy its glorious privilege. . . . In truth, if I am to judge from my own experience, this 'prayer' is at first of so brief duration as not to reveal itself in so manifest a way by external signs and the suspension of the senses. It is to be observed, at least in my opinion, that this suspension of all the powers never lasts long: the suspension is a protracted one that lasts half an hour, and I do not think with me it ever lasted so long. Still it must be confessed that it is difficult to judge of this matter, seeing that one is at the time deprived of feeling. I would simply call attention to one point, namely that whenever this general suspension occurs hardly any time elapses before some one or other of the powers [faculties] comes to itself. The will is the faculty which persists best in the divine union, but the other two soon begin to importune it. As it is in serenity, it brings them back and suspends them again; thus they remain tranquil for a moment, and then resume their natural life. With these alternations the prayer may continue and does in fact continue for some hours. . . . But that state of perfect ecstasy in which the imagination does not wander to any external object is, I repeat, of short duration. I would add that as the powers come to themselves only imperfectly, they may remain in a sort of delirium for some hours, during which God from time to time enraptures them anew and fixes them in himself. . . . What occurs in this secret union is so hidden that it is impossible to speak of it more clearly. The soul then sees itself to be so near to God, and so strong is its certitude touching that fact, that it cannot have the slightest doubt that it enjoys such a favor, all its powers lose their natural activity: they have no knowledge of their operations. . . . Thus the butterfly, memory, sees its wings scorched here, and it no longer can flit hither and thither. The will no doubt is occupied with loving, but it understands not how it loves. As for the understanding, if it understands at all it does so in a way that remains unknown to itself, nor can it comprehend aught of what it understands."*

* "Vie de Sainte Thérèse écrite par elle-même." Compare Plotinus, "Enneades," VI.; Tauler, "Institution Christiana."

I will not follow St. Theresa in her description of "rapture"—"that divine eagle which with sudden impetuosity seizes you and carries you off." These extracts suffice, and whoever reads them attentively will not hesitate to attribute to them all the value of a good psychological observation.*

On examining the detailed narratives of other ecstasists, which I cannot present here, I find that ecstasy may be conveniently for the purpose of our work divided into two classes. In the first motor power persists in a certain degree. The ecstasist follows the several phases of the Passion, the Nativity or some other religious drama, reproducing it with appropriate movements. There is a series of highly intense images with one invariable order of succession, being repeated again and again with perfect automatism. Marie von Moerl and Louise Lateau are well known instances.

The other class is that of ecstasy in repose. Here the idea alone reigns, commonly an abstract or metaphysical idea: in the case of St. Theresa and Plotinus it is the idea of God; for Buddhists it is *Nirvāna*. All movements are repressed: there is felt only "a residuum of inward agitation." Observe in passing how all this agrees with what has already been said, that with abstract ideas the tendency to movement is at the minimum, and that these ideas being representations of representations—pure schematisms—the motor element grows weaker in the same degree as the representative element.

But in both cases the mental state of ecstasy is a complete reversal of the laws of the normal mechanism of consciousness. Consciousness exists only on the condition of perpetual change: it is essentially discontinuous. An homogeneous and continuous consciousness is an impossibility. Ecstasy fulfills the conditions of

* St. Theresa thus describes her physical state during her "raptures": "Ofentimes my body would become so light that it no longer possessed any weight—sometimes I no longer felt my feet touching the ground. While the body is in rapture it remains as though it were dead, and often is absolutely powerless to act. It retains whatever attitude it may have assumed at the moment of the access; thus it continues standing or seated, the hands open or closed, in a word it continues in the state wherein the rapture found it. Though commonly a person does not lose feeling, still it has happened to me to be entirely deprived of it. This has occurred very rarely and it has lasted only for a very short time. Most frequently feeling remains; but a person experiences an indefinable disturbance; and though it is impossible to perform any external act, one still can hear a sort of confused sounds coming from a distance. And even this kind of hearing ceases when the rapture is in the highest degree."

such consciousness in the highest degree possible, but as St. Theresa remarks, either consciousness disappears, or the understanding and the memory—that is discontinuity—come back at intervals bringing consciousness back with them.

This psychological anomaly is complicated with another. All states of consciousness tend to expend themselves in proportion to their intensity. In the highest ecstasy the expenditure is naught, and it is owing to the absence of the motor phase that the intellectual intensity is maintained. The brain, which is in the normal state an organ at once intellective and motor, ceases to be a motor organ. Furthermore, in the intellectual order the heterogeneous and manifold states of consciousness which constitute the ordinary staple of life have disappeared. The sensations are suppressed, and with them the associations they call out. One single representation absorbs everything. If we compare the normal psychic activity to circulating capital that is continually modified by receipts and outlays, then we may say that here the capital is massed in one sum; concentration takes the place of diffusion, extensive force is transformed into intensive. It is no wonder therefore if in this state of mental erethism the ecstasist seems to be transfigured, lifted above herself. Certainly the visions of the rude peasant girl of Sanderet who saw a virgin all of gold in a silvery paradise, bear but little resemblance to those of a Saint Theresa; but every intelligence does its maximum in the moment of ecstasy.

Is there any need now of inquiring why there is neither choice nor acts in that state? How could there be choice, seeing that choice presupposes the existence of that complex whole, the Ego, which has disappeared? The personality being reduced to one idea or one vision, there is no state that can be chosen, that is incorporated with the whole, to the exclusion of others. In a word there is nothing that can choose, nothing that can be chosen. As well might we suppose an election without either electors or candidates.

Thus action is nipped in the bud, utterly estopped. Only its elementary forms remain, as the respiratory movements, etc., without which organic life were impossible. We have here a curious instance of psychological correlation or antagonism: whatever one function gains is lost by some other: whatever thought gains is lost by movement. In this respect ecstasy is the opposite of the states in which mo-

tility is predominant, as epilepsy, chorea, convulsions, etc. In these cases we see maximum of movements, minimum of consciousness: in ecstasy intensity of consciousness with minimum of movement. There is at all times only a certain sum of nervous and psychic force available: if this is monopolized by one function, the other functions are impoverished. Whether the excess shall be on the one side or on the other depends on the nature of the individual.

Having studied extinction of the will in its highest phase, we may remark that we find in the act of contemplation, of profound reflection, modified and minor forms of the same phenomenon. The unfitnes of contemplative minds for action has its physiological and psychological reasons, and these are explained to us by the state of ecstasy.

It is of equal interest to the psychologist and to the physiologist to know what it is that produces abolition of consciousness in somnambulism whether natural or artificially induced, and from what organic conditions it results. But though the subject has been a matter of eager research for some years, we have nothing to offer but theories, and the reader may choose between several hypotheses. Some authors, as Schneider and Berger, regard it as a result of "expectant attention" producing a unilateral and abnormal concentration of consciousness. Preyer holds it to be a special case coming under his theory of sleep. Other authors, as Rumpf, favor the theory of reflex changes in the cerebral circulation—hyperæmia and anæmia in the surface of the hemispheres of the brain. Heidenhain who opposes this last theory refers hypnotism to an inhibiting action. There occurs, he says, a suspension of the activity of the cortical nerve cells, probably resulting from a change in their molecular arrangement, and in this way the functional movement of the gray matter is interrupted. This hypothesis seems to be most in favor, and since it is, at least from the psychological standpoint, simply a statement of fact, we may adopt it.

There is no need to describe a state so many times described before, and that so carefully. We would merely remark that the terms somnambulism, hypnotism and their analogues do not designate a state identical in all individuals and in every case. This state varies in the same individual from simple drowsiness to profound stupor; between one individual and

another it varies according to their respective constitutions, pathological conditions, etc. It would therefore be illogical to affirm that there is always abolition of the will power. As we shall see, some cases are very doubtful.

Take first hypnotism in the form designated by many authors Lethargic. The mental inertia here is absolute; consciousness is utterly gone; the reflex actions are in excess—an excess which always keeps pace with the decline of the higher activity. At a word from the operator, the hypnotized subject rises, walks, sits down, sees absent persons, goes on a journey, describes the landscape, and so on. The only will, as we say, is that of the operator. The meaning of this expressed in more precise terms, is: In the vacant field of consciousness a state is called up; and since states of consciousness tend to action, whether immediately or after having called forth associations, an act follows. The passage to action is here all the easier because there is nothing that hinders it, neither power of inhibition nor an antagonistic state, the idea suggested by the operator having the sole dominion in the slumbering consciousness. Other phenomena apparently more anomalous are explained in the same way. We know that by giving to the members of the hypnotized subject certain postures we can awaken in him the emotion of pride, terror, lowliness, devotion, etc.; if we place him in the position for climbing, he makes as though he were going up a ladder; if we put in his hands any instrument he has been wont to employ, he goes to work with it. Plainly the position given to the members awakens in the cerebral centers the corresponding states of consciousness with which they have become associated by much repetition. The idea, once it is awakened, is in the same condition as one coming from the direct order or suggestion of the operator. All these cases therefore are reducible to the same formula: the hypnotized subject is an automaton that is made to act according to the nature of his organization. There is absolute abolition of will, the conscious personality being reduced to one single state which is neither chosen nor rejected, but suffered, imposed.

The automatism is spontaneous in natural somnambulism; in other words, it has for its antecedent some cerebral state, and that in turn has for its antecedent some special excitation in the organism. Often the automatism is of a high order: the series of states of consciousness called

out is long and each term of the series is complex. As its type we may cite the singer whose history is given by Mesnet. If a cane were offered to him he would take it to be a musket, his recollections of army life coming back to him; he would load his weapon, lie prone upon the ground, take aim and fire. Give him a roll of paper, and his recollection of his present calling were called forth; he would open the roll and sing at the top of his voice.* But the unvarying repetition of the same acts in the same order in each paroxysm gives to all these phenomena a very definite character of automatism from which all will power is eliminated.

Some cases however are doubtful. Burdach tells of "a very fine ode" that was composed in the somnambulatory state. The story has often been told of the abbé who in preparing a sermon corrected and pruned his sentences, changed the places of epithets, etc. Again, a man made sundry attempts at suicide and each time tried different means. Facts of this kind are so numerous that, even making allowance for credulity and exaggeration, it is impossible to reject them all.

It might be said that such acts involve comparison followed by a choice, a preference—in other words a volition; and hence that we have here will power, that is a true reaction of the individual, faint, indeed, obscure, limited, but active.

But we may also hold that automatism is of itself sufficient. For is it not a recognized truth that in the normal state the intellectual work is often automatic, and all the more valuable on that account? Is not what the poets call inspiration an involuntary and almost unconscious sort of brain work—at least is it not conscious only in its results? We read our own writings over again, and our corrections are often spontaneous, that is to say, the movement of thought brings a new association of words and ideas which is immediately substituted for the other. Hence it may be that the individual as one that chooses and prefers is here of no account. Examining the matter more minutely, we may hold that all these cases are not strictly comparable: if to compose an ode automatism suffices, it does not suffice for correcting it; in the latter case there is choice, however rapid, however insignificant we may suppose it to be. Instead of a zero of will we should have a minimum of will. This opinion is reduci-

* "De l'Automatisme de la Mémoire et du Souvenir dans le Somnambulisme Pathologique." Paris, 1874.

ble to the first, and differs from it only by a hair's breadth.

The reader will choose between these two interpretations. I pass now to cases in which the data are more definitely ascertained. We find among hypnotized subjects instances of *resistance*. An order is not obeyed, a suggestion is not followed immediately. The mesmerists of the last century recommended the operator to assume the tone of authority and advised the subject to practice trust, confidence, which produce assent and prevent resistance.

"While in the state of somnambulism B. performed certain acts at the word of command, but others she refused to perform. Usually she would not read though we are confident she could see, despite the apparent occlusion of her eyelids. When her hands were placed in the attitude of prayer, her mind was impressed accordingly. Asked what she was doing, she said she was praying to the Blessed Virgin, but that she did not see her. So long as her hands remained in the same position, she continued her prayer, and showed *displeasure* if any one sought to distract her. When the position of the hands was changed, the praying ceased immediately. However exempt it may be from will action, the praying is in this case in some sort under the control of the reason, for the subject shows a dislike to being distracted, and is able to argue with any one who would interrupt her prayer."* One of Richer's subjects readily allowed himself to be metamorphosed into an officer, a sailor, etc., but he refused with tears in his eyes to be transformed into a priest. This was sufficiently explained by the man's habits and the atmosphere in which he had lived.

Hence there are cases in which two states co-exist—one produced by outside influences, the other by influences from within. We know what the automatic power of the former is. But in the other state this is effaced by a contrary state: there is here something resembling inhibition. But the inhibition is so weak that commonly it succumbs before repeated attacks: and it is so vague that we cannot say what its nature is. Is it not simply an antagonistic state of consciousness awakened by the very suggestion, so that it would all amount to the co-existence of two contrary states of consciousness? Or is the case more complex, and must we

say that it represents the sum of the tendencies still existing in the individual, and some residue of that which constitutes his character? If we accept Heidenhain's theory we must recognize in the so called lethargic state a complete arrest of functional activity; the order or the suggestion of the operator would set in action an exceedingly limited number of nerve elements in the cortex; but in the state of resistance we should see awakening from their sleep some of those elements which in the normal state constitute the physiological and psychological basis of the individuality, being the synthetic expression of the organism. It must be confessed that, even admitting this second hypothesis, all that would remain of will power, of the individual's power of reacting according to his nature, would be an embryo, a power so stripped of efficacy that it is hardly to be called will.

Again it may be remarked that if it is difficult for the observer to say what power of reacting persists in the person who resists, the person himself is no better judge. "A close analysis of the phenomena such as can be made by educated, intelligent men submitting to the action of animal magnetism, proves how difficult it is even for the magnetized patient to make sure that he is not simulating. To make these observations, the sleep should not be very profound. In the period of *engourdissement* consciousness is retained, but nevertheless there is a very plain automatism." A physician of Breslau told Heidenhain that magnetization made no impression on him; yet after he had been brought into the state of *engourdissement*, he was unable to pronounce a single word. On being awakened, he declared that he could have spoken easily enough, and that if he had said nothing, it was because he had preferred not to speak. Put in the state of *engourdissement* again by a few passes, he was again unable to speak. Once more he was awakened, and had to confess that if he had not spoken the reason was that he could not speak. A friend of mine having been *engourdi*, and not quite put to sleep, observed closely this phenomenon of impotence coincident with the illusion of the possession of power. When I indicate to him a movement to be performed, he always executes it, though before being magnetized he was quite determined to resist. This he has the greatest difficulty in accounting for after awakening. 'Certainly,' he says, 'I could resist, but I have not the will to do so.' Sometimes he is tempted to believe that

* P. Richer, "Étude sur l'Hystéro-Épilepsie," pp. 426, 427.

he is simulating. 'When I am dozing,' he says, 'I simulate automatism though I could, as it seems to me, act otherwise. I begin with the firm resolve not to simulate, but in spite of me when sleep begins it seems to me that I simulate.' Of course this sort of simulation of a phenomenon is absolutely identical with its reality. Automatism is demonstrated by the very fact that perfectly honest subjects are unable to act otherwise than as automata. It is of little consequence that they imagine that they are able to resist. *They do not resist.* That is the fact that must be taken into consideration, and not the illusion that possesses them that they have the power of resistance."*

Still this power of resistance, weak though it be, is not equal to zero: it is a last survival of the individual reaction exceedingly reduced; it is on the confine of nullity but does not pass over. The illusion of this feeble power of inhibition must answer to some equally precarious physiological state. In short the state of somnambulism whether natural or induced may justly be regarded as a state of abolition of the will. Exceptions are rare and obscure, but they bring their own measure of instruction. They prove once again that volition is not an invariable quantity, but that it diminishes till the point is reached where we may with equally good reason either affirm or deny its existence.

I will mention in passing a fact that hardly belongs to the pathology of the will but which furnishes matter for reflection. Certain hypnotized subjects may be commanded to perform an action at some future time, at a given time in the same day, or even at a later time, say eight or ten days hence. After they have come to, they execute the command at the prescribed time, on the appointed day, commonly saying that they know not why. In some curious instances these persons give specious reasons to explain their conduct, to justify this act which does not spring from their own spontaneity, but is imposed upon them though they know it not. I cite a case that came under my own observation. A young man at 10 o'clock ordered his mistress who was in the hypnotic state to leave him at three o'clock in the morning; then he restored her to the normal state. Toward three o'clock she awoke, made ready to go, and though he begged her to stay, she found reasons to excuse and justify her going at

that unseasonable hour. "Our illusion of free will," says Spinoza, "is only ignorance of the motives that lead us to act." Do not facts of this kind support the dictum?*

CHAPTER VII.

CONCLUSION.

HAVING examined the different morbid types, let us now see whether we can discover a law which shall sum up the pathology of the will and throw some light upon the normal state.

As a matter of fact, volition alone exists, that is to say a choice followed by acts. Certain conditions are requisite to produce a volition. A lack of impulsion or of inhibition, an excess of automatic activity, of a tendency, of an appetite, a fixed idea, all these may prevent volition for a moment, an hour, a day, a period of one's life. The sum of these necessary and sufficient conditions may be called will. With respect to volition the will is a cause, though it is itself a sum of effects, a resultant varying with its elements. This has been proved by pathology.

These elements, briefly stated, are as follows: 1. Tendencies toward action (or inhibition) resulting from the circumstances, the surroundings, the counsels, the education that influence a person. In a word all tendencies which are the effect of external causes.

2. Character, the principal element, which is the effect of interior causes, and not an entity but the resultant of the innumerable infinitesimal states and tendencies of all the anatomical elements that constitute a given organism. Or briefly, character is for us the psychological expression of a given organism, deriving from it its proper complexion, its special tone and its relative permanence. It is the ultimate stratum whereon rests the possibility of will and which makes the will strong or weak, intermittent, average or extraordinary.

If now we consider the will not in its constituent elements but in the phases through which it passes in its evolution, we see that volition is the final term in a progressive series whereof simple reflex action is the first step. It is the highest form of activity—activity being understood

* Ch. Richet, in the "Revue Philosophique," 1883,

* Many similar facts are recorded in Ch. Richet's article already quoted, "Rev. Philos.," March, 1883.

in the precise sense of power to produce acts, power of reaction.

The will has for its basis a legacy coming down from generations innumerable, and registered in the organism, namely primordial automatic activity, which is almost invariable, and quite unconscious, although in the distant past it must have been accompanied by a rudiment of consciousness which later faded away, in proportion as coördination, growing more perfect, became organic in the species.

Upon this basis rests the conscious and individual activity of the appetites, desires, feelings, passions, whose coördination is more complex and far less stable.

Higher still we have ideomotor activity which in its extreme manifestations attains a coördination at once very stable and very complex: this is perfect volition.

It may therefore be said that perfect volition has for its coördination a *hierarchic coördination*, that is to say, it is not enough that reflex actions be coördinated with reflex actions, rational tendencies with rational tendencies, but there must be coördination between these different groups—coördination with subordination, so that all shall converge toward a single point, namely the end to be attained. Let the reader recall the morbid cases already cited, and in particular those irresistible impulses which in themselves represent almost the entire pathology of the will, and he will see that they are all reducible to this formula: Absence of hierarchic coördination, independent, irregular, isolated, anarchic action.

Hence whether we regard the will in its constituent elements or in the successive phases of its genesis—and the two aspects are inseparable,—we see that its ultimate result, volition, is not a phenomenon supervening we know not whence, but that it has its root deep in the nature of the individual, nay beyond the individual in the species and in all species. It comes not from above but from below; it is a sublimation of the lower elements. Volition may be compared to the keystone of an arch. To that stone the arch owes its strength, even its existence; nevertheless this stone derives its power from the other stones that support it and press it on all sides, as it in turn presses them and gives them stability.

These preliminary observations were requisite for an understanding of the law which governs overthrow of the will; for if the foregoing considerations be just, then since dissolution always pursues a course the reverse of that followed by ev-

olution, it follows that the more complex will manifestations must disappear before the more simple and the more simple before automatism. To express the law in its exact form, and regarding volition not as a phenomenon *sui generis* but as the highest manifestation of individual activity, we should say that dissolution proceeds in a retrograde direction from the more voluntary and the more complex to the less voluntary and the more simple, *i.e.* toward automatism. We have now to show that this law is confirmed by facts, and here we have only to select our materials.

In 1868 Hughlings Jackson, while engaged in the study of certain disorders of the nervous system, observed, for the first time as I believe, that the more voluntary and the more specialized movements and faculties are the first to be affected, and that in a greater degree than the others.* This "principle of dissolution," or of "reduction to a more automatic state" was proposed by Dr. Jackson as the correlative of Herbert Spencer's doctrines touching the evolution of the nervous system. He takes a very simple case, that of hemiplegia from lesion of the corpus striatum. A clot of blood here makes an experiment for us. The patient, whose face, tongue, one arm and one leg are paralyzed, has lost the more voluntary movements of a portion of his body, without losing the more automatic movements. The study of cases of hemiplegia, says he,† proves that the external parts which suffer most are those which psychologically speaking are most controlled by the will, and which physiologically speaking imply the greatest number of different movements, produced with the greatest number of different intervals. If the lesion be serious and if it affect not only the more voluntary parts, as face, arms, legs, but also those which are less voluntary, as when the patient loses the power of certain movements of the eyes, the head and one side of the chest, we find that the more voluntary parts are much more gravely paralyzed than the others.

So too Ferrier observes ‡ that the general destruction of the motor region in the cortex, as of the corpus striatum, produces the same relative disorder of the different movements, those movements being most

* "Clinical and Physiological Researches on the Nervous System." London, 1875.

† "Clinical and Physiological Researches on the Nervous System."

‡ "Localization of Diseases of the Brain,"

affected and paralyzed which are most under the influence of the will, at least after the first shock has passed away. Facial paralysis has its seat especially in the inferior facial region, and affects the more independent movements, the frontal and the orbicular muscles being only slightly affected. The movements of the legs are less affected than those of the arm, and those of the arm less than those of the hand.

The same author draws a distinction between the different *kinds* of movements and their respective centers—those which imply consciousness (and which are called voluntary in the strict sense of the word), and those which are described as automatic, instinctive, responsive (including motor-adaptations of the equilibrium and of motor-coördination, and the instinctive expression of the emotions) which are more or less perfectly organized in the centers underlying the cortex. And he says that the latter possess a relative independence which is at its maximum in the lower vertebrates (the frog, the pigeon) and at the minimum in the monkey and in man. He thinks that in animals whose motor faculties do not seem to suffer much from destructive lesion of the nervous centers, those movements are paralyzed which imply consciousness (voluntary movements) and which are not automatically organized. This, he adds, is proved by the researches made by Goltz. That author has shown that though the paw of a dog is not absolutely paralyzed as an organ of locomotion by lesion of the cortex, it is absolutely paralyzed *in so far as it serves as a hand and is employed as such*. This observation is of prime importance for us, as showing that when an organ is adapted both for locomotion and prehension, the former function persists, though impaired, while the latter function, which is the more delicate one, disappears.*

The instability of the voluntary, complex, higher action as compared with the automatic, simple, lower action is seen again in a *progressive* form in general paralysis of the insane. "The earliest imperfections of the motor power," says Foville, "those which betray themselves

by a beginning, and hardly a beginning even of a break in the harmony of the muscle contractions, are the more readily appreciated because they concern the more delicate movements, and those which require the greatest precision and the greatest perfection. Hence it is not surprising that the delicate muscular movements which go to produce phonation should be the first affected." It is known that an impediment of speech is one of the first symptoms of this malady. Though at first this is so slight that only a practiced ear can detect it, the defect of pronunciation increases steadily and ends at last in unintelligible babble. "The muscles which aid in articulation lose all their harmony of action; they are able to contract only with an effort; the words spoken cannot be understood. In the several members lesions of the motility at first affect only the movements that require the greatest precision. The patient can walk long distances and can use the arm in work that only calls for general movements; but he is unable to perform any of the minor and more delicate operations of the fingers without some degree of tremor, and he has to try again and again. The defect is noticed when the man is asked to pick up a pin from the ground, to wind his watch, etc. Artisans accustomed in their trade to work of great exactitude are incapacitated far more quickly than those whose tasks require but little precision. In writing the pen is held with a degree of indecision which manifests itself in the more or less irregular form of the letters. And as the disease progresses the handwriting becomes more tremulous and irregular, so that by comparing a series of letters written at different periods, we may trace the progress of the malady, till in the end the patient becomes quite unable to write.

"At a later stage the vacillation of the superior members is seen even in their general movements: owing to tremulousness and feebleness of the muscles of the arm the patient is unable to pass food to his mouth, to take out his handkerchief or to replace it in his pocket, etc.

"In the inferior members the course of the malady is much the same. At first insane general paralytics are able to walk firmly when going straight forward: but when they have to turn to the right or to the left, and above all when they have to wheel round in order to retrace their steps, they show hesitation and lack of precision in their movements. Later, even when they are walking straight forward, they

* Ferrier, "Localization," etc. From Goltz's experiments it appears that if the lesion is in the left brain, then in all movements in which the dog was wont to employ the fore paw as a *hand*, he gives up the use of the right paw. Thus he will hold a bone with the left fore paw only, and will employ only that paw in scratching the ground, or in touching his wound. If the dog has been trained to give his paw, he will, after mutilation, give only the left paw. (Goltz, in "Dict. Encycl. des Sci. Méd.," art. NERVEUX.)

advance with a heavy tread and with ill-coördinated steps. Later still they have difficulty in making even a few paces."*

Compare the disorders of the motor system which follow the abuse of alcohol. Tremor is one of the earliest phenomena. "The hands are first affected, next the arms, the legs, the tongue and the lips. As the disorder progresses the tremulousness becomes complicated with another affection of a more serious kind, muscular debility. This too first affects the superior member in nearly every case. The fingers lose their cunning, the hand holds objects imperfectly and lets them slip from its grasp. Then this feebleness extends to the forearm and to the arm. The patient now can use his superior members only in a very imperfect fashion, and in time he is unable to take his food without assistance. Later these phenomena extend to the inferior members. To stand becomes difficult; the gait is unsteady, tottering; and these symptoms become more and more pronounced from day to day. The muscles of the back in turn succumb, and the patient must keep his bed." †

Compare also what takes place in convulsions, chorea, etc. This steady advance, which for the physician possesses only a clinical interest, has for us a psychological interest. These familiar facts will suffice, I hope, to prove that the course of dissolution is from the complex to the simple, from the voluntary to the automatic, and that the final term of evolution is the initial term of dissolution. We have so far studied, it is true, only the disorganization of movements, but those who treat psychology as a natural science will find here nothing that needs to be restated. Inasmuch as volition is for us not an imperative entity reigning in a world apart, but the ultimate expression of an hierarchic coördination; and as each movement or group of movements is represented in the nerve centers, it is plain that with each group that is paralyzed an element of coördination disappears. If the dissolution is progressive, the coördination, which is continually being stripped of some element, becomes more and more restricted: and since experience shows that the disappearance of movements is in direct ratio to their complexity and their precision, our theory is justified.

We might further pursue this verifi-

* Foville in the "Dictionnaire de Médecine," art. PARALYSIE GÉNÉRALE.

† Fournier, *ibidem*, art. ALCOOLISME.

cation of our law by calling attention to what takes place in diseases of speech. Here we touch upon the inmost mechanism of the mind: but I will not discuss over again a subject I have already treated at length. In "The Diseases of Memory,"* I have endeavored to show that many cases of aphasia result from motor amnesia, that is, from a forgetfulness of motor elements, of those movements which constitute articulate speech. I will simply repeat that it was an observation of Trousseau that "aphasia is always reducible to a loss of memory either of the vocal signs or of the means whereby words are articulated;" and that W. Ogle also recognizes two word memories—one, recognized by every one, whereby we are conscious of a word, and besides this another whereby we express it. This forgetfulness of the movements, though primarily it is a disease of memory, reveals to us furthermore an impairment of the motor power, a disordered condition of voluntary coördination. The patient wishes to express himself, but his volition comes to naught or manifests itself imperfectly; that is to say the sum of the coördinated tendencies which at the moment constitute the individual in so far as he would express himself, is partially hindered in its passage into act; and experience teaches us that this impotence of expression affects first words, *i.e.* rational speech; next exclamatory phrases, interjections, what Max Müller calls emotional language; lastly, and only in rare cases, gesture. Here too then dissolution proceeds from the more complex to the less complex and to the simple: from the voluntary to the semivoluntary and the automatic; but the latter is in most cases unaffected.

We may now advance further into the purely psychic life, but here all becomes vague and fluctuating. As we no longer can refer each volition to a group of movements of the vocal, locomotory or prehensile organs, we must needs grope. Still we cannot but perceive that the highest form of volition, voluntary attention, is rarest of all and the most instable. If instead of considering voluntary attention † after the fashion of the subjective psychologist who studies himself and there halts, we consider it in the mass of sane adult persons, in order to determine approxi-

* See HUMBOLDT LIBRARY, No. 46, Chapter III., page 39.

† We do not speak of involuntary attention, which is natural, spontaneous. This point has already been explained in Chapter IV.

mately what place it holds in their mental life, we shall see how seldom it occurs and for how short a time it lasts. If it were possible to survey humanity as a whole for a given period of time, and to compare the sum of the acts produced by voluntary attention with the sum of the acts produced without it, we should find the ratio to be nearly as zero to infinity. By reason of its very superiority and its extreme complexity, it is a state, a coördination* that can seldom come into existence and which begins to break up as soon as it is formed.

To confine ourselves to admitted facts, is it not a familiar observation that inability to hold the mind attentive is one of the first symptoms of mental impairment whether temporary as in fevers, or permanent as in insanity? The highest form of coördination therefore is the most unstable, even in the purely psychological order.

And what is this law of dissolution but a phase of the great biological law already pointed out with respect to memory, viz., that the functions last to be acquired are the first to degenerate. In the individual automatic coördination precedes coördination springing from the appetites and passions; this latter precedes voluntary coördination: and the simpler forms of voluntary attention precede the more complex. In the development of species, according to the evolution theory, the lower forms of activity existed alone for ages; then with the increasing complexity of the coördinations came will. Hence a return to the reign of impulsion, with whatever brilliant qualities of mind it may be accompanied, is in itself a regression. This being so, the following passage from Herbert Spencer will serve us as a summation and a conclusion upon this point: †

"There is one other trait of nervous debility on which a few words may be said—the accompanying change of character or modification of the emotional nature.

"Even small ebbings of the nervous fluid hardly to be called abnormal produce slight modifications of this kind, as is observable in children. The highest coördinating plexuses being in them the least developed, children betray more quickly than adults any defective action of these plexuses; and they habitually do this when the general nervous pressure is

below par. Sluggishness of the alimentary canal, implying partial failure of nutrition and decreased genesis of energy, is accompanied by fretfulness—by a display of the lower impulses uncontrolled by the higher.

"It is however in the chronically nervous whose blood, deteriorated in quality and feebly propelled, fails to keep up a due activity of molecular change, that we see this connection of phenomena most clearly. The irascibility of persons in this state is matter of common remark; and irascibility implies a relative inactivity of the superior feelings. It results when a sudden discharge, sent by a pain or annoyance through those plexuses which adjust the conduct to painful and annoying agencies, is unaccompanied by a discharge through those plexuses which adjust the conduct to many circumstances instead of a single circumstance. That deficient genesis of nervous fluid accounts for this loss of emotional balance is a corollary from all that has gone before. The plexuses which coördinate the defensive and destructive activities, and in which are seated the accompanying feelings of antagonism and anger, are inherited from all antecedent races of creatures, and are therefore well organized—so well organized that the child in arms shows them in action. But the plexuses which by connecting and coördinating a variety of inferior plexuses adapt the behavior to a variety of external requirements have been but recently evolved; so that besides being extensive and intricate they are formed of much less permeable channels. Hence when the nervous system is not fully charged these latest and highest structures are the first to fail. Instead of being instant to act, their actions, if appreciable at all, come too late to check the actions of subordinate structures."

Having step by step followed the course of dissolution of the will, the fundamental result seems to be that the will is a coördination varying in complexity and in degree; that this coördination is the condition of all volition; and that when the coördination is either partially or wholly broken up, volition is either abolished or maimed. Upon this result we would now insist, limiting ourselves to a few brief suggestions upon certain points.

I. Let us first examine the material conditions of this coördination. Will, though among a privileged few it attains extraordinary power and performs great feats, has a very lowly origin. It has its rise in a biological property inherent in all living matter and known as irritability, that is to say reaction against external forces. Irritability—the physiological form of the law of inertia—is in some sense a state of primordial indifferentiation whence shall spring, by an ulterior differentiation, sensibility properly so called and motility, those two great bases of psychic life.

* Just as groups of simple movements have to be organized and coördinated to allow of the higher coördination from which come delicate and complex movements; so must groups of simple states of consciousness be organized, associated and coördinated to allow of this higher coördination called attention.

† "Principles of Psychology," vol. i., § 262.

Motility, which alone concerns us here, manifests itself even in the vegetal kingdom under divers forms, as by the movements of certain spores, of the Sensitive Plant, of *Dionæa* and sundry other plants to which Darwin has devoted a well known work. The apparently homogeneous protoplasmic mass which alone constitutes certain rudimentary organisms, is possessed of motility. The amœba, the white corpuscle of the blood, move little by little by the aid of the processes which they send out. These facts which are described in many special works teach us that motility made its appearance long before the muscles and the nervous system.

We have no occasion to follow the evolution of these two apparatus through the animal series. We would only remark that researches upon the localization of the motor centers—a subject that very nearly concerns the mechanism of the will—have led some physiologists to study the state of these centers in new-born animals. "This investigation, very carefully made by Soltmann in 1875, gave the following results: In hares and dogs, there does not exist, immediately after birth, any point in the cortex capable, under electric irritation, of producing movements. Not until the tenth day are the centers for the anterior members developed. On the thirteenth day the centers for the posterior members appear. On the sixteenth these centers are distinguishable from one another and from those belonging to the face. One conclusion to be drawn from these results is that the absence of voluntary motor direction coincides with the absence of the corresponding organs, and that the more the animal becomes master of its movements, the cerebral centers in which the volitional process takes place gain a more manifest independence."*

Flehsig and Parrot have studied the development of the brain in the foetus and in the infant. From the researches of the latter author † it appears that if we follow the development of the white matter of an entire hemisphere, we find it rising successively from the peduncle to the optic thalami, then to the internal capsule, to the hemispheric center, and finally to the mantle of the brain. The parts which are slowest to develop are those which are destined to perform the highest functions.

The formative period past, the mechanism of will action seems to be as follows: The incitation starts from the so called

motor regions of the cortex (parietofrontal region) and follows the pyramidal fasciculus called by some authors the voluntary fasciculus. This fasciculus which is formed by the grouping of all the fibers coming from the motor convolutions, descends through the oval center, and forms a small part of the internal capsule, which as we know penetrates into the corpus striatum "like a wedge into a piece of timber." Then it follows the peduncle and the medulla where it undergoes more or less perfect decussation and passes to the opposite side of the cord, so forming a great commissure between the motor convolutions and the gray matter of the cord, from which are given out the motor nerves. This rough sketch gives some notion of the complexity of the elements requisite for will action, and of the close connection which exists between them.*

Unfortunately there are differences as to the interpretation of the real nature of the brain centers from which comes the incitation. According to Ferrier and many other authors these are motor centers in the strict sense, that is to say, in them and through them the movement begins. Schiff, Hitzig, Nothnagel, Charlton Bastian and Munk have given other interpretations not all of equal clearness or of equal probability. But they generally agree in regarding these centers as being rather "sensory" in their nature, the motor function proper being referred to the corpus striatum. "The nervous fibers that extend from the cerebral cortex, in higher animals and in man, down to the corpora striata are in their nature strictly comparable with the fibers connecting the 'sensory' and the 'motor' cells in an ordinary nervous

* The process is described as follows by Dr. Charlton Bastian. Taking the spinal and medullary mechanisms as being either developed or in process of development we may now turn our attention more particularly to a consideration of the parts whence and of the channels through which cerebral incitations pass in emotional, ideomotor and volitional movements. One part of the route has been pretty clearly defined.

Motor stimuli pass from certain parts of the cerebral cortex downward to the corresponding corpora striata. These bodies are called into activity in a way which cannot be defined, though from them the motor stimuli seem to be continued and redirected toward the motor mechanisms in the medulla and spinal cord. The tracks of these latter stimuli are fairly well known. They pass from each corpus striatum through the inferior layers of the crus cerebri and through the pons Varolii on the same side; while below this bridge they are gathered together in the anterior pyramid of the medulla, which after a course of a little more than an inch decussates in part with its fellow, so that many of the fibers of each pyramid pass over into the opposite lateral column of the cord, while some continue to descend on the same side in the anterior column.—"The Brain as an Organ of Mind," chap. xxvi.

* François-Franck, in the "Dictionnaire Encycl. des Sci. Méd.," art. NERVEUX, p. 585.

† "Archives de Physiologie," 1879.

mechanism for reflex action.* In other words, there exists in the cortex "circumscribed regions experimental excitation of which produces in the opposite side of the body determinate localized movements. Seemingly these points ought to be regarded much rather as centers of voluntary association than as motor centers properly so called. They are the seat of incitements to voluntary movements, and not actual starting points of movements. They are to be compared rather to the peripheric organs of sense than to the motor apparatus of the anterior cornua of the medulla. These centers then are psychomotor centers because by their purely psychic action they command true motor apparatus. . . . We believe that the different points indicated as motor centers for the members, the face, etc., correspond to the apparatus which receive and transform into voluntary incitation the sensations of peripheric origin. These are volitional centers, not true motor centers."†

But notwithstanding this question remains still undecided, and notwithstanding the matters of detail respecting the part played by the cerebellum that are as yet undetermined, we may say with Charlton Bastian that "if since Hume's time we have not learned in any full sense of the term 'the means by which the motion of our bodies follows upon the command of our will,' we have at least learned something as to the parts chiefly concerned, and thus as to the paths traversed by volitional stimuli."‡

II. If we look at the question on its psychological side, voluntary coördination assumes so many forms and exists in so many degrees that we can only note its principal features. It would be the natural course to consider the lowest form, but I judge it best, for the sake of clearness, to follow the reverse order.

Coördination of the most perfect kind is seen in great men of action whatever be the nature of their activity—in Cæsar, Michelangelo or Saint Vincent de Paul. Its properties are unity, stability, power. The outer unity of such men's lives is founded on the unity of their aim which they steadily pursue, and which according to circumstances makes new coördinations and adaptations. But this outer unity itself is but the expression of an inner unity—the unity of their character. It is be-

cause they remain the same that their aim is the same. What is fundamental in their nature is a mighty, irrepressible passion which controls all their thoughts. This passion is the man—the psychic expression of his constitution as nature made it. Such men present the type of a life always in harmony with itself, because in them everything conspires and converges to a definite aim. Such characters are found in everyday life, but they are unknown to fame because either loftiness of aim, or circumstances, or, above all, strength of passion has been lacking. They possess only stability. The great historic Stoics, as Epictetus and Thræseas—I speak not of their Sage, who is only an abstract ideal—have realized this higher type of will in its negative form—inhibition—conformably to the maxim of the school, Bear and refrain.

Below this grade of perfect coördination, there are characters that show an intermittence of coördination: whose center of gravity, while ordinarily stable, oscillates nevertheless from time to time. A group of tendencies will temporarily secede from the coördination, expressing, so far as they are active, one side of the character. Neither as regards themselves nor as regards others have these individuals the unity characteristic of strong wills; the more frequent and the more complex these infractions of perfect coördination, the less is the will power.

Lower in the scale we find lives in which two contrary or two different tendencies reign alternately. There are in the individual two alternating centers of gravity, two points of convergence for coördination: successively preponderant but partial. This type is perhaps the most common one, as we may convince ourselves by looking about us or by consulting the poets and the novelists of every age who are ever declaring that there are two natures in every one. The number of these successive coördinations may be larger still; but it is useless to pursue further this analysis.

One step more and we enter the region of pathology. Take a case where sudden and irresistible impulses hold the will every moment in check: here is an unduly strong tendency ever destroying the equilibrium, for its intensity will not allow of its being coördinated with the other tendencies: it commands instead of subordinating itself. And when such impulses have come to be not an accident but a habit, not one side of the character but the character itself, then there is only an

* Bastian, "The Brain as an Organ of Mind," chap. xxvi.

† François-Franck, *loc. cit.*

‡ *Loc. cit.*

intermittent coördination—it is the will that becomes the exception then.

Lower still, and will is simply accidental. In the indefinite succession of impulsions that vary from minute to minute, a chance volition finds only at long intervals its conditions of existence. Caprices take the place of volitions. The hysterical character furnishes the type of this perfect *incoördination*. Here we reach the final term of the will. At a grade lower than this there are no diseases of the will, but an arrest of development which precludes will altogether. Such is the state of idiots and imbeciles. We will add a few remarks upon these mental states in order to complete our pathological study.

"In profound idiocy," says Griesinger, "effort and determination to action are always instinctive. Generally they are prompted by the craving for food, and in most instances they possess the character of reflex actions of which the individual is hardly conscious. Certain simple ideas however may incite them to effort and movement, as when they amuse themselves by playing with bits of paper or the like. Without taking into account those sunk in the profoundest idiocy, the question arises, Is there here anything that represents will? What is there in them that can will?"

"In many idiots of this last class the only thing that seems to arouse the mind in some degree to action, is the desire to eat. The lowest idiots manifest this desire only by grunts and bodily agitation. Those in whom mental degeneration has not gone so far move the lips or the hands slightly, or even cry: thus do they express their desire of food. In idiocy of a less pronounced type, the basis of the character is inconstancy and obtuseness of feeling and weakness of will. The humor of idiots belonging to this class depends on their surroundings and the treatment they receive. They are docile and obedient when well cared for, but perverse and malicious when ill used."*

Before we quit this subject, we would remark that if the will is a coördination, that is to say a sum of relations, it may be affirmed *a priori* that it will be of far rarer occurrence than simpler forms of psychic activity, because a complex state has much less chance of coming into existence and of enduring, than a simple state. And so it is in fact. If in any human life we take note of the parts played by automatism, by habit, by the passions, and above all by imitation, we shall find that the number of acts that are in the strict sense of the term purely voluntary is very small. For the majority of mankind imitation suffices: they are contented to accept that which has been matter of vol-

untary choice by others, and as they think in the thoughts, so they act with the will of the multitude. Viewed in connection with the habits that render it of no use, and with the diseases that maim or destroy it, the will, as we have already said, is a happy accident.

We need hardly observe how closely this coördination, ever growing more complex, of tendencies, which constitutes the different degrees of will, resembles the coördination, ever growing more complex, of sensations and mental images which constitutes the different degrees of intelligence. The one has for its basis and fundamental condition character, the other "forms of thought." They are each a more or less perfect adaptation of the individual to his surroundings whether in respect to action or to cognition.

We are now ready to formulate the general conclusion of this inquiry, already incidentally indicated. It will, I hope, throw light retrospectively upon the path we have been pursuing. It is as follows:

Volition is a final act of consciousness resulting from the more or less complex coördination of a group of states whether conscious, subconscious or unconscious (purely physiological) which all together find expression in an action or in an inhibition. The principal factor of the coördination is character, and character is simply the psychic expression of an individual organism. It is character which gives unity to the coördination, not the abstract unity of the mathematical point, but the concrete unity of a *consensus*. The act whereby this coördination takes place and is affirmed is choice founded on a natural affinity.

Thus volition, so often observed, analyzed and explained by subjective psychologists, is in our view simply a state of consciousness. It is only an effect of that psychophysiological activity, so often described, whereof a part only enters consciousness under the form of a deliberation. Furthermore, *volition is not a cause at all*. The acts and movements that follow volition result directly from the tendencier feelings, mental images and ideas which have succeeded in being coördinated in the form of a choice: from this group comes all the efficiency. In other terms, and to leave no ambiguity, the psychophysiological work of deliberation results on the one hand in a state of consciousness,—the volition; on the other hand in a sum of movements or inhibitions. *The "I will" shows that a situation exists,*

* Griesinger, *opus citatum*, pp. 433, 434.

but does not constitute it. I should compare it to the verdict of a jury which may be the result of very passionate pleadings and of the charge of the judge, and which may be attended by grave consequences extending far into the future, *but which is an effect and not a cause*, being in law a simple determination, or ascertainment.

If the will be insisted on as a faculty, an entity, all is contradiction, obscurity, confusion. If on the contrary we take the facts as they are, we at least free ourselves of factitious difficulties. We do not have to ask ourselves how an "I will" can make my members to move. That is a mystery that does not need to be explained, for the simple reason that it does not exist, volition being in no sense a cause. We must look for the secret in the natural tendency of feelings and mental images to find expression in movements. Here we have only a very highly complicated case of the law of reflex action in which between the period of excitation and the motor period there appears a capital psychic fact—volition—showing that the first period ends and the second begins.

Observe further how the strange malady called aboulia may be easily explained, and with it the analogous forms considered in Chapter II., and even the simple feebleness of will—hardly a morbid state—so common among persons who say they have the will and act not. The explanation is that the individual organism had two effects to produce and produces only one—the state of consciousness, choice, affirmation; but the motor tendencies are too weak to pass into acts. There is sufficient coördination, but insufficient impulsion. In the case of irresistible acts, on the contrary, impulsion is in excess, while coördination is defective or non-existent.

Thus then we obtain from the study of the pathology these two results, viz., that the "I will" has no efficacy in producing action; and that will in the sane man is a coördination exceedingly complex and instable, and by reason of its very superiority easily broken up, being "the highest force yet introduced by nature—the last consummate efflorescence of all her wondrous works." *

* Maudsley, "Physiology of the Mind." *



THE ESSENTIAL NATURE OF RELIGION.

By J. ALLANSON PICTON.

AUTHOR OF "THE MYSTERY OF MATTER," ETC.

I. RELIGION AND FREEDOM OF THOUGHT.

It is related of a deservedly famous nonconformist preacher, that an admiring hearer, in praising his pastor to a gentleman credited with latitudinarian opinions, said "Our minister is very liberal, sir; very free indeed, —*except, of course, in fundamentals.*" What the worthy deacon—for such I believe he was—included in his list of "fundamentals" I do not know; nor for our present purpose is it of any import. But in treating them as of course excluded from any free handling, he unconsciously touched on a very critical and even vital issue, which the present, or perhaps rather the coming, age is bound to work out to the end. And that issue is the question how far religion in the sense of spiritual life, or, as it has been called, "saving faith" is dependent upon the stability and certainty of any particular opinions. The thought which that good man a little awkwardly expressed was of course something like this;—there are some opinions which are matters of indifference, such as the significance of the imprecatory psalms, or of the Song of Solomon; and on such matters it is a *virtue* to think freely; but there are also ideas essential to the faith, such as the infallible authority of the

Scriptures, or the doctrine of the Trinity; and on these it is a *vice* to think freely. This is merely an expression in plain words of an attitude of mind very common at the present day, but which has none of the conditions of equilibrium or permanence except one—if it be one—and that is arbitrary willfulness. For it involves the necessity for drawing a line which shall separate essential opinions on the one hand from non-essential opinions on the other; a line which in practice it is found impossible to keep permanent or clear. For instance, a man who at one period of his life draws that imaginary line at the doctrine of justification by faith, may afterward remove it to some special form of opinion on the divinity of Christ. But if, when his idea of standing or falling faith is at this point, he should be asked whether in his view Unitarians have any chance of salvation, he will almost certainly reply that he hopes so; and that for his part he rather thinks they will. At the same time the admission only shows how obscure and unsatisfactory even to himself is the line that he has drawn to mark off the doctrines essential to salvation. For, as he strongly holds that "without faith it is impossible to please God," he must believe that his Unitarian friends have in some way or other this saving

faith, although they deny what according to his rule, is an essential element in it. Men of ordinary intelligence, whose views are gradually enlarged, not by the logical development of any recognized principle, but by the practical necessities of social life,* do not care to ask themselves what is involved in their charitable admissions. But there are others who want to know whither such admissions are taking them, and how far this unlimited latitudinarianism of charity is reconcilable with the retention of Christianity in any form. Candor will not allow such men to ignore the fact that the Gospel, if it is to be judged by its original documents, has a reverse side. For if it is a message of salvation in one aspect, it is certainly a message of condemnation in another. Nor is this in the least surprising in a religion which insists with divine authority on the need of moral reformation. But that, which excites uneasiness and repugnance in the judicial severity of Christianity, is the undeniable fact that, in the New Testament, condemnation is denounced against no sin more commonly or more unrelentingly than against that of unbelief. And nothing can be more unsatisfactory than the amiable platitudes with which some writers, enveloped in a roseate mist of sentiment that obscures stern facts whether past or present, enlarge upon the tenderness of the Gospel toward those "who follow not with us," while they conveniently forget the patent truth that from the beginning to the end of the Christian Scriptures, belief is associated with salvation, and unbelief with its opposite.†

* In some circles of society there may still survive here and there an interesting specimen of the fine, old-fashioned sectaries who would laugh, joke, and exchange piquant anecdotes with unbelievers whose speedy consignment to a horrible fate was a matter of devout faith. But they are surely dying out.

† Compare 1 Cor. i. 18; 2 Cor. ii. 16; iv. 3; Gal. i. 8, 9. It is perfectly certain that St. Paul had a mind and heart incapable of mere sectarian narrowness or intolerance; and with him the moral element in faith was

The first expedient therefore of more candid doubters is to insist that the amount of intellectual belief necessary to salvation is strictly confined to a very few essential doctrines. Then follows an earnest effort, comparatively easy at first, but always more painful as the process of compression proceeds, to reduce the "fundamentals" of religion to the lowest possible denomination. And if the associations were not so solemn, there would be something ludicrous in the thought that multitudes at the present day are asking themselves "What is the smallest amount of dogma that I can hold with safety to my soul, or at least consistently with a retention of the Christian name?" Such a condition of things is surely a *reductio ad absurdum* of the notions usually entertained concerning the place of opinion in religion.

But farther, whatever distinction be drawn between fundamental and comparatively indifferent doctrines; or however small be the compass within which the former are reduced; still, on the ordinary notion of religious faith, some propositions are left such as are necessarily dependent on historical evidence or logical proof, but belief of which is required, as a condition of salvation, from people who have no understanding of either. There are thousands of young men whose intellects are just sufficiently awakened to feel that opinions received only by tradition can hardly be called personal opinions at all. They are exhorted from many a pulpit to be "fully persuaded in their own minds;" they are told they should be able "to give to every man that asketh them a reason of the hope that is in them." Yet many of the questions, upon which they are expected to be fully persuaded, depend on issues of historical criticism, about which they are quite incompetent to form any satisfactory or manifestly

supreme. But still it cannot be denied that he treated the rejection of his main doctrines as morally sinful.

final opinion. Current opinions, for instance, about the Person and the work of Christ are absolutely dependent for their support on the authenticity of the gospels as commonly received. When, therefore, the prevalence of controversy on this latter subject forces on a young man of ordinary education the conviction that the authenticity of the sacred narratives is at all events not quite indisputable, it is inevitable that some modification must be made in his certainty concerning the doctrines involved. It is of no use to urge that on such matters he should be satisfied with the reasoning of the best critics just as he is content to adopt the views of Grote or Niebuhr on Greek or Roman History. For first, he is called upon to decide who are the best critics; and next, there is no question of salvation or perdition, or to put it more mildly, of religion or irreligion involved in his opinions about the character of Cleon, or on the nature of the inspiration derived by Numa from Egeria. In such matters as these a very slight preponderance of probability is sufficient to determine opinion; and opinion so formed may be held with perfect contentment, even where it is suspected, that farther light on the subject might altogether change its character. But where present spiritual life, nay, even eternal blessedness, is thought to be dependent on the formation and retention of a right opinion, the case is very different. In such a case it is surely impossible to rest content, unless the bases of belief are felt to be absolutely impregnable. We receive little comfort in general from the assurance that faith is not the same thing as theological opinion. For those who give us this assurance always assume that some theological opinions are necessarily involved in faith, and that without them faith perishes. But this leaves unassuaged the old aching desire to know what these opinions are, and on what impregnable grounds they rest.

It is common to advise men of

doubtful minds to hold their childhood's faith until they know something better, and to depend for present evidence upon their practical experience of the moral power exerted by their earlier religious views. There is perhaps no fault to be found with such advice properly interpreted, except this,—that it is totally inconsistent with the notion that any opinion whatever can be necessary to salvation or indeed to the "faith which worketh by love." For, to say nothing of its equal applicability to doubting and ignorant Mahomedans or Buddhists, to whom we may well suppose their religion to have been at least the best moral influence they have known; the assumption, by way of hypothesis, that a certain religion is true, is not like assuming the correctness of a mathematical quantity for purposes of calculation. In the latter case no process of reckoning is in the least affected by the uncertainty of the hypothetical quantity. Addition, subtraction, multiplication and division can be as surely carried on with a quantity the value of which is acknowledged to be doubtful, as with one which is exactly known. Not so with the moral and spiritual activities of life. Here a suspicion of unreality in the actuating motive must necessarily weaken every spiritual function arising out of it. But if "justifying faith" involves any element of opinion, this latter must be the belief that some statement of doctrine or of historical fact is absolutely, or at any rate, substantially true. What sort of energy, then, or warmth or zeal, can there be in a faith which is only an experimental assumption? Or how can I, "in the inmost parts," regard as true that which the unsilenced whisper of reason assures me is utterly uncertain? I can *act* as if it were true: that is, I can frequent the assemblies and ceremonies of the Church with an outward show of devotion: I can utter words of prayer while I doubt whether there is any heavenly ear to listen: I can imagine

the gratitude which ought to be shown, on the supposition that a great sacrifice has been made for me, even if to me this should seem only the one poetic dream amidst the dreariness of a defunct theology,—the one beautiful bow in the clouds that have drowned a world: I can lend the influence of example and liberality to Church action, which, if its basis were only sound, would seem the very energy of God's life in the later phases of creation. Nor need there be any hypocrisy in all this while my mind is in suspense. But meantime, if the faith that justifies and saves is in any sense, or to any degree, dependent on certainty of opinion, I am unjustified, unsaved, and beyond the pale of redemption. And in the event of my death without a change, even the most charitable true believers can hardly adjudge me to instant blessedness, without some confusion or even stultification of their ideas about redemption by faith.

In reference to this subject, one notorious sign of the times is the comparative ill odor into which creeds have fallen, not only among the skeptically inclined, but also among those, if such there are, who never had a doubt in their lives. The faith of this generation in Christ as Savior and Lord is on the whole not less strong, while it is in some respects nobler and more spiritual, than the faith which animated our fathers three hundred years ago. But at that time it was the fashion to draw out expressions of this faith in the form of creeds which contained many doctrines, all urged as of equal authority, and with the same dogmatic distinctness. Take for example the articles of the Anglican Church, or as at once more nobly and more terribly significant of former Protestant feeling in Great Britain, the Westminster Confession. Those creeds were once regarded as of the most solemn and weighty importance for the preservation of true religion. Yet, to say the least, they have fallen into disuetude

now.* And why? Because practically it is being discovered that the most earnest piety is quite compatible with the denial of various articles contained therein. Or, in other words, they confound faith and opinion, a confusion of which in these times we are growing more and more impatient.

The same tendency is seen in the rapid enlargement of the conditions of church communion. Of this the Anglican Establishment does not afford so apposite an illustration as the Nonconformist Churches outside of it. For the legal conditions under which the Establishment exists have brought ecclesiastical discipline to a deadlock. And the practical absence of any conditions whatever of communion is not so much the result of any intelligent latitudinarianism, but rather of the indifference of the ultimate law-makers, the parliamentary electors, who have ceased to take any interest in national Church politics except in regard to the question of disestablishment. The liberty which is boasted by the "Broad Church" party, as the glory of their legal position, may be regarded from the unbelievers' point of view as triumphant evidence of popular indifference. And however this may be, it seems that a freedom, which results not from the direct influence of popular religious life, but from the powerlessness of congregations and Church courts, can hardly be reckoned, except very indirectly, as any indication of widespread intelligent conviction. I regard the case of the nonconformist communities as more in point, because they are perfectly at liberty to be as narrow as they please. Their churches exist only by the co-operation of individual zeal. They can

* In England, many nonconformist places of worship contain the Westminster Confession in their trust-deeds. But I know by experience that the assumption of office by the minister may be preceded, not by a signature of the creed, but by an express repudiation of it.

make what terms of communion they like. They can alter them at their pleasure. And if, while there is no appearance of any decay of religious life, there is generally speaking a growing latitudinarianism in their terms of communion, they afford (perhaps without knowing it) proof demonstrative that a growing realization of the distinction between faith and opinion is one of the most striking characteristics of the Christian consciousness of the times. That there is a marked progress in this respect, any one who thinks the history of Nonconformity worthy of the slightest attention can easily satisfy himself.

Hardly fifty years ago the members of the same communion among non-conformists* were expected to exhibit an almost entire uniformity in their theological opinions. Substantially only one opinion was permitted on the inspiration and infallibility of the Bible. All the points of Calvinism were considered to be binding on every candidate for admission to "the Church;" and the whole system of opinion distinctive of the communion was regarded as vitally connected with "saving faith." But every one knows, or at least every one who cares may know, that the case is widely different now. Certainly people of the most varied views on the nature and extent of inspiration readily unite together in one communion. And within the limits of the denominations which formerly were exclusively Calvinistic we can now find all modifications of doctrine, from high Calvinism † to what used to

* It may be thought that the Unitarians are forgotten, but this is not the case. Their means for maintaining uniformity are different from those of other denominations; but they have been no less strenuously used.

† A curious illustration of the graduated condition of modern Calvinism once fell within the experience of a nonconformist theological student, sent out from his college to preach at a village chapel. A young man who came to meet him at the railway station was very curious to know the precise altitude of doctrine which might be expected by the congregation on the Sunday, and by way of emphasizing the importance of the subject,

be called with an ill-deserved emphasis of contempt "rank Arminianism." It is true that these denominations are for the most part very jealous of any freedom in dealing with doctrines which they consider *fundamental*. And the name, "Unitarian" as an offensive weapon serves very much the same purpose as the epithet "Arminian" in the last generation. But there is hardly the same confidence in using it. The position may be illogical, but it is significant. It is not to be explained by vague phrases about the growth of liberality. For the question naturally arises, how is it that earnestly religious people feel that they have any right to be liberal where their fathers were so stern? They are not less zealous and eager, perhaps not less intolerant, where they suppose the interests of vital godliness to be concerned, than their most puritanic ancestors. And how is it then that on some questions they are so much more indifferent? The only answer is that they have driven farther than their predecessors the distinction between faith and opinion.

Another illustration of the same tendency is the quiet manner in which questions between science and scripture are settled, or contentedly left unsettled. Why is it that geological deductions and speculations, unless perhaps when they hint at Darwinism, now excite no alarm? Most people who know anything about it are ready to acknowledge that, so far at least, whatever may be their hopes for the future, no satisfactory method has ever been suggested for reconciling the early history of Genesis with established facts. But in these times there are very few whose faith is at all disturbed by the acknowledgment. How can this be explained? They hold opinions directly contrary to the manifest meaning of the details of the Mosaic story. True, they may profess to hope that some inconceiv-

he said to the student, "Yo' seen sir, some on 'em likes it high, and some on 'em likes it low; I likes it middlin' high myse'n."

able mode of interpretation will hereafter, with sweet violence, woo the sacred words to say the very opposite of what they seem to say. But meantime such people hold their opinions on the earth's story independently of the Bible, nay, in the teeth of the only interpretation they dare put upon the Bible. And if they feel no uneasiness, it must be because in their inner consciousness there is far more recognition of the true relations of faith and opinion than they would like to acknowledge in words. Their faith clings to the creative Majesty which shines from the pages of Genesis; but as to the opinions accidentally associated therewith through the traditional Mosaic cosmogony, these are quietly dropped.

The same thing is true, though perhaps in a less degree, in reference to the opinions which orthodox theology seems to imply as to the time of man's appearance on the earth, and the dealing of God's providence with our first progenitors. It might have been supposed that the faith usually associated with evangelical opinions would find it impossible to survive the shock occasioned by the sublimation of the alleged historical fall of man into an imaginative myth, or an idealized summary of human probation. The proof that man existed ages before the earliest date which it is possible to assign to Adam, is felt to throw the whole historical system of evangelical opinion out of gear. Nor can any labored theories about the place of pre-Adamite man in creation and grace, restore the convenient compactness with which history was formerly arranged for purposes of theology. Here, again, there are those who hope with a fond steadfastness almost pathetic, that some way will be found of bringing Adam back from the ideal world to a material garden, and to actual, though apparently impossible, rivers. But meantime the insuperable difficulty of taking up his predecessors into the view of history which he represents, and an inevitable revulsion from the

thought of extruding them from the human history to which they so plainly belong, have force enough to dislocate the whole system of opinion previously held. And if a man in such circumstances retains, as so many do, his cherished evangelical faith, he is a fresh illustration of the variable relations which a fixed faith may bear toward changeful opinions.

Nor is it only by scientific or logical processes that opinions are thus detached from faith. The moral feelings which faith has educated often outgrow beliefs on which her authority has seemed to insist. The savage massacres of men, women, and children, recorded in the book of Joshua, and honored by tradition as a sacred work inspired by the Word of God, are a burden to the hearts and consciences of the most fervent believers in Him who said, "he that hath seen me hath seen the Father." Such records are usually treated as the proper object of faith, because the authority of God is expressly quoted for the terrible deeds described. And the difficulty of reconciling them with divine goodness has even been regarded as a salutary exercise of faith. Yet in the case of the sons of Rizpah, who were cruelly slain for a crime in which they had no share, good Dr. Adam Clarke felt the exercise to be too hard; and he cut the knot by denouncing the passage as an interpolation. Such a mode of procedure, adopted without the slightest manuscript authority, or a single really critical reason, he considered to be perfectly consistent with his reverence for the Bible, and his faith in the Christian revelation. But in doing so, he raised an issue between faith and opinions about the Bible, which cannot in these days be dropped, as he dropped it, with a complacent assurance, that "still the great foundation of God standeth sure, and is sufficiently attested by his own broad seal of consistency, truth, and holiness." (Commentary on 2 Sam. xxi.) This is in effect to

say, "I have a strong faith in the religion of the Bible; but my feelings and my conscience assure me that this particular passage is corrupt." What if another man shall say, "My critical inquiries show me that the passage is as genuine as any other; but my feelings and my conscience assure me that it is low in moral tone, and false where it refers to God"? Is the former opinion only to be considered consistent with Christian faith, and the latter as a proof of infidelity? If so, it can only be because the Christian faith is thought to be inextricably bound up with a particular opinion as to the infallibility of the Bible, not as the Book exists at the present day—for that is denied in either case—but as it existed at some former time in a purer form, now entirely irrecoverable. There are really many who do in their hearts fear, that if the infallibility of this once existent but now vanished Bible be given up, there is an end to Christianity. Surely it would be well to look this question in the face. And it is strange that so many excellent people, of good general intelligence, fearless in politics and strong on the vital power of moral principle, persist in shirking the issue as they do. The real reason probably is this, that the issue is one which widens out until it embraces the question, whether any opinion whatever is absolutely essential to faith.

But the pressure of this confusion as to the relations of faith and opinion, is felt far more acutely at the present time, in regard to questions of New Testament history. As a crucial instance, let us take the crowning event in gospel story, the resurrection of Christ. After the death of Chevalier Bunsen, a somewhat sharp controversy was held as to his opinions on this subject. On the one hand it was contended that he had held only a spiritual or visionary resurrection, and on the other it was urged that he had maintained a sound belief in a literal resurrection of the Lord's earthly body. But the point on

which I would fix attention is this, that the controversy was conducted with a warmth which seemed to imply that the illustrious scholar's moral character was in question. The one side appeared to feel that they were making a damaging accusation; and the other that they were defending him not from a misinterpretation, but from a slander. Such a case necessarily leads us to ask, what is the relation between justifying faith and opinions as to the nature of the resurrection? The grandeur of the effects produced by the event,—whatever its real character may have been,—the comfort it has given, and the light which it has been felt to shed on the mystery of human life, give the reappearance of Christ to his disciples after his death an altogether exceptional importance. Without it, to most minds, succeeding Christian history is wholly unaccountable. But there are those who think otherwise; and if ordinary views on the connection of faith and opinion are valid, Christian believers have only two modes of regarding such men. Either their opinion is dishonest; or we must condemn them for a conscientious conclusion.

I know that most of us endeavor to avoid both horns of the dilemma. In a confused sort of way we impute to them a mental condition which is both acute and blind, and a moral state of sincerity and insincerity equally intermingled. We reflect that "the heart is deceitful above all things;" we remember that there is no deception more complete than self-deception; and we complacently illustrate our argument by examples of impostors who have come to have a genuine belief in themselves. Without doubt there have been instances of abnormal mental or moral states, which we can only picture to ourselves in some such confused way. The greatest liar I ever knew had a face so meek and innocent, and met the gaze of scrutiny with eyes so calm, that I could not help thinking he had a

"conscience void of offence." But then in such cases we generally feel that there is some morbid element in the constitution. There is some obscure disease analogous to kleptomania, some latent madness not uncommonly associated with extraordinary powers. But surely, unless we have fallen into such a condition ourselves, we cannot sincerely attempt to account in such a fashion for the opinions of all who deny the historical reality of the resurrection. There are men of thoroughly healthy nature, of at least fair critical judgment, and of unimpeachable integrity, who, after earnest investigation, come to a conclusion opposite to our own. In such cases charitable confusion will not serve our purpose, and—always supposing the ordinary hypothesis as to the relation of faith and opinion to hold good—we must inevitably accept one alternative or the other; either we must impute to them some insincerity, or we must condemn them for an honest opinion.

But, to look at the question from another point of view, can it be maintained that the evidence which we have to offer in favor of our own opinion about this great event, is such as to force upon us any unnatural or strained hypothesis to account for the unbelief of others? When we bear in mind the fragmentary character of the historical records handed down to us, and the apparent discrepancies which have exercised the ingenuity of harmonists—when we consider that the synoptic narratives, which generally agree very fairly, present in their testimony to the resurrection most important differences, while one of them, that of St. Mark, appears originally to have recorded nothing more than the discovery of the deserted tomb,—when it is added that the Fourth Gospel gives an almost entirely new selection of appearances, while St. Paul's testimony differs from all alike—surely it cannot be contended that the historical evidence is such as to make discussion impossible. Of course each intelligent believer has his own way of meeting

these difficulties. But where is the man, I would not say so ignorant of historical criticism, but so deficient in common sense, as to deny that there are any difficulties at all? One may remind himself that the Apostles had no notion of preparing affidavits to serve as legal evidence after their death. Another believer will be quite satisfied to think that the discrepancies were left, as an exercise of faith, by the Divine Spirit who dictated the narratives. One may reflect that notes of oral teaching, such as he takes the synoptic gospels to be, are not likely to be exhaustive or precisely accurate in their record of events; and remembering how the excitement of unusual occurrences confuses observation and memory, he may think it no great marvel that these gospels should be more divergent here than anywhere else. Another believer will insist that a superintending inspiration has made the various narratives supplementary one to another. Similarly all have their own methods of accounting for the additional accounts contained in the Fourth Gospel and in 1 Cor. xv. But all think there is something to be accounted for; all feel there are difficulties to be met. Nor can it be too bold to affirm that were these scanty records the sole material for the formation of opinion, the case for the affirmative would to say the least scarcely be very strong. So far, then, as the question is one of original documentary evidence, it can hardly be maintained that disbelief is so unwarrantable as to prove a bias against the truth. But, whether consciously or not, we do most of us rest our belief on quite other grounds. We say that Christian life and history are great facts, which seem inexplicable apart from the resurrection. Granting the imperfect nature of the New Testament records considered in themselves, yet nothing in all history, sacred or profane, is more clearly established than the fact that the men who had been companions of the Lord in Galilee and Jerusalem did, immediately after his final disappearance from

the world, declare that he had risen from the dead, and that they had seen him since his crucifixion. Still further, it is established with equal certainty that this testimony of theirs was accompanied by an outburst of moral regenerative power such as the world has never seen before nor since. This peculiar influence which possessed the souls of the Apostles, and raised them above all ordinary human motives, was not any new philosophy, like Buddha's, nor any sacred wrath against idolatry, like Mohammed's. It was something for the like of which history might be searched in vain—something, the inward experience of which can only be described in the words of St. Paul—"the power of God unto salvation." But one of the most characteristic notes of the experience of this strange spiritual force was its constant and inveterate association with the announcement of the resurrection of the great Teacher. It was the power which God "wrought in Christ when He raised him from the dead;" it was "the power of Christ's resurrection;" to realize it was to "rise with Christ;" and in him the first-fruits, the whole coming race awake to newness of life, as the whole spring is embodied in the first blade above the ground. More than that, the Life lives yet. God has shined in our hearts too, "to give the light of the knowledge of the glory of God in the face of Jesus Christ." And all our noblest thoughts, all our most searching motives, all our keenest emotions are consciously, vitally connected with our recognition of the crucified and risen Christ as "the brightness of God's glory." Now, unless the Apostles did in some real sense see their Lord after his crucifixion and burial, we hold, with St. Paul himself, that it would be impossible to acquit them of false witness, or in plain words of deliberate lying; and such is our inveterate and most righteous association of falsehood with impurity, that it is impossible for us to believe the regeneration of the world to have originated in a lie. It is, then, the moral argument, organically bound up in gen-

eral Church history and actual Christian life, which affects us far more than any inference from a criticism of the original documents considered in themselves.

Still, on a review of all the conflicting evidence, it is impossible to condemn those who think that the whole argument points to a conclusion different from that which is ordinarily assumed by the Church. When it is borne in mind that the one appearance of which alone we have direct and indubitable personal testimony, that to St. Paul, was manifestly visionary* in character, and when it is remembered how strenuously he insisted that the manifestation of the risen Savior to him was of precisely the same value as the mani-

* By this word I do not mean unreal. In my own view there need be no doubt that the impression of an outward and visible glorified presence was distinctly made on the brain of St. Paul, and was the result of a really divine inspiration. Whether it should be called miraculous or not is another question. But if, as a divinely-ordered step in the development of a higher religion, St. Paul was made to have such a strong inward realization of Christ's spiritual majesty, that this projected itself in the form of an outward vision, as was the case with Col. Gardiner; what does it matter whether we call it miraculous or not? In the sense of being unusual it *was* miraculous. In the sense of producing an extraordinarily intense apprehension of a divine presence which is never absent, it *was* miraculous. But if it is insisted that no view is satisfactory which does not admit a suspension of known laws of nature, it is the duty of those who thus insist to point out precisely what laws of nature they conceive to have been suspended. Does any one really think it reverent to suppose that a physical frame, so far terrestrial as to be capable of making audible vibrations in atmospheric air, hovered, in defiance of gravitation in the noon-day sky? Either the phenomena were physical or they were not. If they were we ought at least to be able to form a distinct conception of them, and to put it into words. Would it be reverent to conceive the actual body of the Lord poised in the air? But if the phenomena were not physical, there is only one other alternative; they were mental, projected, we may believe, under a really divine impression, from within outwardly, not from without inwardly. It need scarcely be pointed out how inconsistent any physical appearance would be with the representation in the Acts that the personal presence was realized by St. Paul alone, and not by his fellow-travelers.

festations to the other disciples; it is, to say the least, unreasonable to charge with willful blindness all those who believe that the appearance of Christ after his death was entirely of a spiritual nature. That such a hypothesis has its difficulties is most true. But so has every other. And all that I urge in this place is that where the question at issue, put it how we may, is after all a choice of difficulties, it is scarcely consistent with the claim of our religion to universality, that it should condemn as perverse and irreligious the adoption of all conclusions but one.

There is one way of meeting such perplexities which, as it has been adopted by some of the best and ablest men of our own times, has naturally attracted much attention; and as it is proclaimed with a sort of generous scorn for the misapprehensions of religion betrayed in the above reasoning, has inspired much confidence, especially among the young and ardent. This may be called without offense the Broad Church method. It consists in a deprecation of all mere opinion on religious doctrines and an insistence on self-abasement before the glory of the truth. According to this view, it is not any personal belief, mine, yours, or his, which is of consequence; but only that comprehensive truth, of which they are all alike imperfect apprehensions. No doubt there is in such a suggestion a pregnant hint of what will some time be recognized as the very soul of religion. But meanwhile it must be conceded that there is much in what enemies say of this Broad Church method. For there is a vagueness about it which gives us great difficulty in determining what precisely is its interpretation of the religious life. Perhaps we may be told that the true position is the denial of the possibility of any precise interpretation. Still, if it is not my thoughts about the truth, but the truth itself which is of consequence, one naturally asks what is the relation which is here suggested between the individual soul and the object of its devotion? If

there is no sort of relation, our case does not differ from that of beasts; while, if there is such a relation, it must be somehow expressed in consciousness. But that expression is precisely our idea or belief, which may be inadequate indeed, but which is yet the only means whereby the truth can command our loyal submission. And if it is a knowledge of the truth, which constitutes religion, then piety is on this theory, as well as on the other, dependent on correctness of opinion.

The feeling of vague inadequacy which is excited by the "glorious insufficiencies" of Broad Church theology is however converted into dumbfounded amazement when we are pointed to ancient creeds as the grandest symbols of the truth. And no veneration for the great qualities of our teachers can alleviate our bewilderment when we are told, that what we had vainly thought to be contradictions, absurdities, or impossibilities in the ancient documents of the Church, should rather be accepted with thankfulness as a rebuke to our self-opinionativeness, and as a solemn lesson on the inferiority of our narrow conceptions to the infinite comprehensiveness of the truth. Creeds like that attributed to Saint Athanasius, which bear in every word the stamp of a narrow aim to define the limits of right thought by a lawyer-like exactness of phraseology, are appealed to as a majestic reproof of the substitution of opinion for religion. With the purpose which such great teachers have in view we may feel the profoundest sympathy, because we take that purpose to be the ultimate emancipation of spiritual life from bondage to any opinion whatever. But for the method which they propose to us we may have nothing but a confession, often unaffectedly mournful, of an utter incapacity to comprehend it. The thought which underlies a good deal of Broad Church doctrine on this subject seems to be, that divine truth has shone out impressively but fragmentarily in a number of canonical books and estab-

lished formulas, all of which, however they may confound our notions of fact or possibility, are to be accepted, not indeed as infallible, but as complementary one of another, and of our own insufficient opinions. Now it may well be that a very genuine humility and a very generous sympathy inspire sentiments such as this. But in the present age that will not exempt them from curious criticism. And we cannot help asking why this broad view should be limited to *canonical* books and *established* formulas? If it only means that what is commended by a wide and concurrent testimony of human experience should be treated with respectful attention, we may admit the force of the observation; while at the same time we cannot avoid remarking that it is equally applicable to the Koran or the Vedas, and to the formulas of the religions which they represent. If on the other hand it is urged that all utterances of religious experience, and all forms of worship, and all creeds, Christian or heathen, have germs of truth which we should do well to scrutinize, there is a good deal to be said also for even so extreme an assertion. But to winnow the chaff and dust from the grains of truth is surely the work of individual judgment. Or if the Christian books and forms of belief have pre-eminent claims to be a divine revelation, the ground and extent of these claims must manifestly rest on sufficient reasons, of which each mind made the object of appeal is necessarily, under whatever responsibility, the judge. Thus the Broad Church method, of spurning individual opinion in comparison with the glory of the truth, would appear to differ only in vagueness from the common bluntness of sectarianism which connects salvation with the formation of right opinions. Nor does it make any difference if a Divine Person be substituted for the truth, as the object of adoring submission. For here an opinion of startling and portentous import is at once involved. And it

cannot be denied that some great and good men, whose disinterested love of truth, or whose high character none but bigots would challenge, have insisted that the attribution of a literally personal (which must mean human) mode of being to the Supreme Majesty is a daring presumption, analogous, though on a grander scale, and with a better motive, to the treason of the Parisian Mænads, who would not tolerate the distance separating their sovereign from the familiarity which ended in contempt. Now, either here in the insistence on the literal personality of Almighty Power, we have an opinion which is absolutely necessary to religious faith, or else that faith can exist apart from any opinions whatever, except such as are merely the judgments uttered by moral sentiments.

Another device of liberal theology to evade the terrible conclusions involved in ordinary notions of justification by faith, is the interpretation of salvation and perdition, not as permanent states of happiness or misery, but as opposite moral conditions; in one of which the soul realizes eternal verity, and by that contemplation is purified from self-worship; while in the other the soul is wholly involved in temporal accidents, itself the center of them all. It is often difficult to judge how far the representatives of this school of thought identify that eternal verity with certain great theological opinions. On the one hand their sympathies sometimes appear unlimited by any considerations of belief or unbelief. On the other hand the enormous importance which they attach to venerable formulas and creeds, notably to theological conceptions of the Trinity and the Incarnation, would seem to imply that some of these conceptions are, if not identical with, at any rate the only portal of, everlasting truth. Now, if any such theological opinions are indispensable conditions of that present divine life in which men grasp eternity, the horror of an ever-enduring punishment of false opinion may

indeed be eliminated; but it is still difficult to see how the blessings of the highest spiritual life can justly be made dependent upon correctness of opinion. On this view, it would seem that however earnestly a man may aspire after purity and goodness, he cannot know the bliss of eternal life unless he can force his intellect to a possibly repugnant conclusion. It is no consolation for him that to others such a conclusion appears in the highest degree rational. Such a fact is rather an aggravation of his sufferings. For he is not constituted so as to see things as they do. It appears therefore that if he would but "make his judgment blind," all would be well; and because as an honest man he dare not do so, he is excluded from the blessedness vouchsafed to others. It is simply the old incongruity of damnation for opinion over again, only in a more subtle form, that mocks us with the pretense of a solution. Nor is it of any avail to tell us, as indeed we are told by advocates of the older superstition, that false opinions are always dangerous, and in many affairs of life bring some curse after them. This is indeed most true; and is rightly urged as an inducement to make the best use of our intellectual powers. But on the other hand, in regard to all the lower activities of life, it is generally held that the consolations of religion are always available for those who have done their best and failed. A man who by a well-intended but mistaken transaction loses his fortune, may humbly believe that his aims have been set aside by the grander purposes of God. Nay, even a man who has lost his opportunities by arrogant self-will, may in after humiliation own his punishment to be just, and find some healing by his acquiescence in the righteous government of the world. But here only, in that divine life which is the true "balm of hurt minds," the oil of joy to involuntary griefs, and even the antidote to the sting of sin, involuntary errors of judgment may bring down a curse,

than which no greater can be visited on unpardonable sin,—the loss of eternal life. It may indeed be true that God has implanted in the heart certain instincts, which if they be loyally followed, lead each man to the highest life possible for him; it may be true that in every ingenuous heart there are strong predispositions to a reverence for the Majesty half-revealed and half-concealed in creation; it may be true that for want of loyalty to such an inward law many a man too heedlessly wrongs himself, and shuts himself out from the shrine of the universe. But it cannot be for one moment contended that any such inward law points unmistakably to doctrines like that of the Trinity or of the Incarnation. Yet liberal theologians, in their professed contempt for external evidences, often seem to proceed on the assumption that if a man will but follow the light within, especially as its indications are modified by carefully-placed mirrors of culture, he must needs become a Broad Churchman. If he does not, it is the disloyalty of indifference which has seduced him into pathless wilds; or perversion of vision which has misguided him into the narrowly-walled gardens of the sects. But if, on the other hand, such vague expressions of liberalism when plainly interpreted mean, that salvation in its noblest sense cannot be conditioned on the adoption of any opinion whatever, then here indeed is a clear field, on which we may examine without hindrance the essential nature of religion. But the distinct expression of such a view would scarcely be consistent with the authoritative maintenance of the creeds and articles of the Church.

It may occur to some readers of these pages that in the present state of opinion a good deal of this discussion might well have been spared. The notions with which we have been dealing belong, it may be urged, to a day gone by; and though the words which embodied them may remain, the feelings answering to them are

irrevocably dead. That this is so to a very large extent amongst the thinking portion of religious people has been already admitted. But it is not so with the unthinking numbers, who form, of course, a very large majority. And it never will be so with these, until those who think for themselves have the courage to speak according to their thoughts, and not according to the supposed necessities of a time which really needs nothing so much as plain speaking. And this plain speaking is especially demanded from all who believe that the spirit of Christianity can survive the destruction of the letter. It would be invidious to refer to any special illustrations of the tendency here deplored, nor is it necessary. For almost all spoken and written discourses, professing to be sermons for the times, continue to adopt a style of exhortation which is wholly incongruous with the changed position of the exhorters. Still we find "faith" most inconsistently demanded for historical events, which are no more the proper objects of faith than are the hydrogen flames in the sun. For either those events are proved according to the best canons of historical criticism, or they are not. If they are, common sense, not faith, dictates our belief; while if they are not, credulity, not faith, receives them. To keep up the confusion, these same discourses treat the events of Biblical history as though they were necessarily exempted from ordinary rules of evidence, and needed to be approached quite differently from any other events, with a disposition to believe them even on insufficient evidence. We are pointed to simple saints, and unlettered men of triumphant practical power, who have proved the benefit of believing even without understanding the evidence at all, but simply from the force of spiritual experience; while yet not the slightest attempt is made to show that this spiritual experience necessarily involved the reality of the historical events. The

writers or speakers of these exhortations often do not themselves believe in the infallible accuracy of the accounts from which they derive their knowledge of the events on which they insist. They thus admit the right of private judgment, and do not pretend to draw any line of limitation beyond which that right becomes a wrong. And yet they seem to insist on connecting faith, that "power of an endless life" with historical opinion about events concerning which they themselves do not know where uncertainty ends and certainty begins.

The same confusion is sometimes exhibited where there can be no question as to the wish of the teacher to speak distinctly his whole meaning; when we are told to bear in mind that there is a knowledge by faith as well as a knowledge by observation. In illustration of this remark we may venture to quote from a series of three sermons, preached before the University of Cambridge, the following passage.* "Man would, indeed, be the most absurd of all animals if, while he has strivings and longings after a spiritual world, there were no ascertainable relation between him and that world. The position that there is a knowledge which is of faith as well as a knowledge of the things we see just explains man to himself. *By faith we understand.*" Whether the word knowledge is used in two different senses in this passage, we are not told. Perhaps the author thought that a sufficient distinction is suggested by the different descriptions,—"knowledge which is of faith" and "knowledge of the things we see." But this is a difference in their sources only. The one knowledge springs from faith; the other from observation and comparison. It would have facilitated our

* "Creed, or No Creed." Three Sermons preached before the University of Cambridge in October, 1871, by J. B. Pearson, M.A., Cambridge.

understanding of this distinction if the preacher had told us precisely what he meant by faith ;* whereas he seems to assume that the notion is equally distinct with that of sight. In the inevitable perplexity which ensues, we are obliged to try whether the difference between the objects of the one knowledge and the other will help us. Now it would appear from the connection, that one object of the knowledge by faith is an *ascertainable* relation between ourselves and the spiritual world. But surely the epithet "ascertainable" suggests intellectual processes of investigation, comparison, and distinction, such as would make the result very much like the other sort of knowledge which we derive from sight. Again we find that in words which must appeal to every heart, however we may be dissatisfied with their logic, our instructor describes it as a function of faith "to accept a creed which tells of a divine incarnation of humanity and an atonement of our nature with the divine."†

There is such an earnestness of purpose in this preacher, that it may seem almost cold-hearted to stop and ask precisely what he means. But the necessities of the religious crisis impending are such that no half-criticisms will serve us. What, then, is the "divine incarnation?" If it is anything dependent on the reality of the miraculous conception, it is a matter for strict historical investigation; but that is surely not a function of faith. It is of no use to urge that the conclusions of two differently-disposed men judging the same evidence, will be colored by their susceptibilities and desires. We know they will; but that is just what we insist ought not to be. A man has no more right to accept insufficient evidence of the miraculous concep-

tion because the doctrine depending on it appears to him beautiful, than he has, without adequate proof, to accept the legend of William Tell as historical, because the story gives such a glow of romantic interest to the emancipation of Switzerland. The fundamental question in each case is, Did the thing happen or did it not? If we have evidence enough to answer in the affirmative, it is, as I have endeavored to show elsewhere, not a matter for faith at all; it is a fact ascertained by intellectual observation. Whereas, if we have not evidence enough to prove the affirmative, faith can no more supply the lack than it can bridge the abyss between us and the moon. To no purpose is it urged that probability forms an element in such questions, and that this is measured by faith; as when I maintain my absent friend's honesty, even on doubtful evidence, because I trust him. For this assumes a knowledge of the plans of the Most High, the claim to which would be impious were it not well-intentioned, and condoned by the unthinking sympathies of piety. What an extraordinary circle of reasoning such assumptions establish! Successive generations of mankind are told that God has worked certain wonders for the purpose of revealing His character. They form their ideas of His nature according to the suggestions thus given. And when at last some one asks how we know that these things really happened, the answer is, that the evidence is not quite conclusive, but every one who rightly appreciates the divine character will feel that they are extremely probable.

On the other hand, if the "divine incarnation" is something which does not depend on the reality of the miraculous conception, it is difficult to say what it can mean, unless an extraordinarily glorious suggestion of the divine background of existence by means of a human person. For, to speak of the embodiment in a human shape of a hypostasis of the Infinite Being, is to use words to

* In a previous passage (p. 40) it is described as "the highest act of reason in which the varied powers of knowledge and feeling and will blend their several notes," etc. But this is scarcely what we want.

† Page 58.

which avowedly no rational conception is attached, and which are used upon authority in deference to an alleged revelation supported by certain historical credentials. Here we are brought to historical criticism at once. We are bound to decide according to the evidence; and as before, it must be insisted that this is not a function of faith at all, but of intellectual observation, which, for all moral and spiritual purposes, may be classed with sight. But if the less theological description of the divine incarnation, given above, be deemed sufficient, it is manifest that the sense in which this is accepted, must be entirely dependent on the sufficiency or insufficiency of the evidence to give a really historical picture of Christ. Let the issue be clearly understood. Our argument postulates neither the truth nor the falsehood of the memories and doctrines which are represented by preachers as objects of "the knowledge which is of faith." It only insists that either alternative must be determined by evidential considerations with which faith has no more to do than it has with the multiplication table. "The knowledge which is of faith," turns out to have objects which are not only presented to the intellect, but must be judged entirely by the intellect, before they can possess any validity. But no more can be said concerning the "knowledge of the things we see;" and the alleged contrast appears to be one of those distinctions without a difference which are the cause of endless confusion. The true antithesis between faith and sight we have endeavored to ascertain in a previous essay; and the application of the ideas adopted there to the confusions here pointed out is obvious. For events certified by the intellect appeal to faith for their ultimate significance, just as much as the external world does, or the regular succession of phenomena. But that significance cannot be formulated by metaphysical theology,

nor by ontological speculations on the person of Christ. It is realized by the excitement of predispositions in loyalty to which we trust, the supreme moral order taking form in our consciences as love and righteousness. But to maintain that this loyalty is unattainable, except on condition of adopting intellectual conclusions, the grounds of which leave room for doubt, is contrary to experience, and scarcely reverential toward the divine government of the world.

It is time to bring to a point this preliminary discussion, in order that we may enter upon the more positive treatment of our subject. From what has been said, it results that if religion is universally possible, not to say universally binding, it must be consistent not only with freedom of thought, but with any possible issue of a conscientious use of that freedom. A universal religion cannot make any creed whatever binding upon us, except that which it does not create, but finds involved in, yet needing evolution from, the constitution of the human mind. Revelation there may be; but in as far as it is dependent upon evidence, it cannot rightfully demand assent as a duty, where two divergent conclusions are honestly possible. Facts of the grandest religious significance there may have been; but the ascertainment of such facts is the work of critical judgment, not of faith. And if their deepest significance is only apprehended by faith, this is a characteristic which they share with all the phases of creation. But faith there must be too; not the weakness which regards credulity as a virtue, but the loyalty of soul that trusts, even where it cannot trace all their issues, the predispositions which are the reaction of the heart upon the infinite mystery of life.

From this point of view, however intimate may be the connection between faith the persistent energy, and opinion the varying form, of

religion, the two must be fundamentally distinct. And though it would be as difficult to imagine faith entirely abstracted from opinion as it would be to conceive animal life apart from some organic form, yet the one ought not any more than the other to be confounded with its various modes of particular expression. Hence the importance of the distinction between faith and sight. For opinion is almost always of the nature of sight, expressing the result of our own observations, or else of the observations of others; while on the other hand faith is the energy of a loyalty to certain predispositions which we recognize more or less distinctly as laws of our being. There are indeed instances—such as that of our belief in an external world, or our assertion of a causation beyond mere succession,—in which faith does undoubtedly generate opinion. But this is only an illustration of that sort of polar antithesis according to which faith and sight mutually create one another. For these opinions just mentioned are evidently the legitimate projection of inherent predisposition on the field of outward observation. And if it should be alleged that this principle is equally applicable to those opinions about historical revelation, which are here maintained to belong to sight rather than to faith, the answer is obvious; for faith does not create its object, neither does it supply the place of eyes, or ears, or reason. What faith does is simply to give, in loyal obedience to an inward law, a certain interpretation or subjective form to outward objects perceived by appropriate faculties. But faith cannot supply the gaps of historical evidence; no more than it can give increased power to a defective telescope or microscope. And if on the other hand the historical evidence is complete, it needs no confirmation from faith. Yet, if it is insisted farther that what is wanted is not confirmation, but interpretation; the answer is that faith will deal with

such events precisely as it deals with all the myriad objects which under its intuitions grow to the vision of a divinely-ordered world. Faith will not have one rule of interpretation for events in Palestine, and another for events in Greece. One old world memory may indeed be more suggestive than another to the predispositions which faith obeys. But those predispositions lead us, as we have seen, rather to everlasting order than to miracle; rather to a universal and eternal manifestation of God than to any exceptional divine communications. That strange events have happened, pregnant with spiritual significance, and seeming to mankind like a special effort on the part of God to break through the barriers of sense, it would be rather folly than arrogance to deny. But the reality of such events it is no part of faith's prerogative to establish. That must depend upon the evidence which they can present to sight.

II. THE EVOLUTION OF RELIGION.—FETICHISM.

IN the pages which here follow, it will be my object to suggest an idea of religion such as is not only consonant with the view already taken of faith, but is also consistent with that principle of continuous development, which is more and more recognized as in some sense the key to the whole progress of creation and of man. To all who estimate rightly the significance of those signs of the times mentioned above, no definition of religion can be satisfactory unless it surrenders all distinction between essential and non-essential dogmas; unless in fact it is capable of embracing within its scope every conceivable opinion that can by any possibility be conscientiously held. Nor must this condition of conscientiousness be narrowly interpreted, as though, for instance, I covertly implied the exclusion of so-called atheistic opinions

from an occasional though certainly paradoxical connection with religious feeling. For what is usually meant by atheism is not necessarily any denial of the measureless life that throbs at the heart of the world; but simply the rejection of this or the other theism which is proposed for acceptance. If, amongst a tribe of Calibans, the only god proclaimed were Setebos; any one who denied him might well consider himself an atheist; and yet the reason for his atheism might be, not any want of appreciation for the wonder of the world, but a deep feeling that there is far more in existence than such a theism can account for. And if some of the tribe should add to the attributes of Setebos those of Jove, still such a recusant might feel that the power manifested in the world was something grander far than could even by imagination be impersonated in such a form. Of such essentially religious atheism we shall hereafter see a remarkable example in Lucretius. Nor is it irrelevant to remind ourselves that a Pagan generation could not conceive the spiritual religion of Christ as anything but atheism. But should it be objected that the ideas now prevalent of the Divine Government of the world leave no excuse for such an anomalous position as that falsely attributed to Socrates, and actually adopted by Lucretius, we may venture to remark that such an objection greatly underestimates the stupendous vastness of the subject; and fails to make any sufficient allowance for the infinite variety of aspects under which it may appear to different finite minds. However we may account for it, there can be little doubt that there are at the present day those who are atheists only in this sense, that they deny every particular theism on the ground that it is an inadequate expression of the mystery of being. And that can be no profound religion which is without any sympathy for a position like this. Yet there is undoubtedly, as I have urged in another essay, a sort of

atomic atheism which, intellectually at least, amounts to a denial of either the need or the possibility of religion. If a man can really think that the glory of the universe is explicable on the hypothesis of little indestructible and eternally dancing points of matter, which have no deeper reality within or beyond them, then certainly religion is in that man an incongruity, but it does not follow that he will be wholly destitute of it. For I do not for a moment believe that any man *can* really think any such unthinkable absurdity. He may think that he thinks it; but that is all. What he really means is that there is no farther explanation *possible*, however much it may be needed; and therefore he calls his atoms the ultimate explanation of the world. But that does not hinder him from many a moment of reverie, in which he recognizes in the universe some nameless Unity that awes his spirit to a silent worship. It is not the only instance in which inconsistency is salvation.

Now these extreme illustrations of the working of that principle, above enunciated as the outcome of the religious difficulties of the time, ought to help us to some positive apprehension of what the essence of religion is. For even the atheist, in the loneliness of that desert from which all bright embodiments of spiritual affections have perished, still feels the mystery and the might of the boundless darkness that oppresses him. The human mind chafes like the sea against all temporary bounds. Every newly-discovered cause invites speculation into the regions beyond it; and every fresh generalization suggests still grander views of the unity of the world. Nor is it possible to conceive the existence of a race properly human, without some germ of the sense of spiritual mystery which so rapidly widens out into an apprehension of that Infinite "whose center is everywhere, and whose circumference nowhere." But such an apprehension involves the feeling of

dependence, subordination, the craving after harmony with that larger Power which is dimly discerned. And it is in this distinctively human apprehension which, while faintly discoverable in the humblest, remains in the highest humanity wholly unresolvable into any forms of the logical understanding, that we must seek the essential nature of religion. Following the suggestions of great teachers,* but carefully avoiding the snare, into which some have fallen, of confounding religion with philosophy on the one hand, or with morality on the other, we may define religion as being in its essential nature an endeavor after a practical expression of man's conscious relation to the Infinite. By our conscious relation to the Infinite, I mean that indefeasible sense of ultimate substance and all-sufficient power, which is the main subject of argument in the essay on the Philosophy of Ignorance. And if the word "Infinite" should be unfortunate in its suggestion of a final effort at metaphysical abstraction, such as is impossible to simple minds, yet it has the advantage of a kind of fluxional significance, expressing the successive removal of limits in the aspiration after that ultimate mystery which is beyond all thought. The simple savage, who wonders at the unseen but mighty wind that streams from unknown realms of power, has already the germ of the feeling which inspires religion. All I ask is that the phrase "conscious relation to the Infinite" may be accepted as including every stage in the development of this consciousness, just as the name of a plant includes the germinating blade as well as the fruit-bearing maturity. This being granted, what constitutes religion is not the intellectual formulation of that consciousness; for this is properly the work of philosophy. But religion aims rather at expression in the language of the heart. And if I

use the epithet "practical," it is not because I would confine the idea of religion to deeds of devotion or acts of worship, though these are necessarily included; but because the term seems best to embrace both such manifestations of religion, and also that inward energy which in contemplation yearns after the supreme good. For religious contemplation, though in its highest form it may be passive rather than active, is yet practical in this sense, that it is a willingness to lose self-will and self-love in the glory of God.

I propose then to show how such an idea of religion is not only applicable to all the forms in which religious life is manifested, however divergent the opinions associated therewith, but is also consistent with the development of religion through all its stages of fetichism, symbolic idolatry or nature-worship, and prophetic systems. For these are all the stages that can be distinctly recognized; and even those, if we could examine them closely enough, would probably be found to melt into each other more gradually than is supposed. Only let it be distinctly understood that the reality of a divine impulse is assumed throughout. For if the evolution of religion be a normal phase in the development of mankind, there must be at the root of it that grand and measureless Power which is the inevitable, even if nameless, complement of the conception of evolution. That the reality of my profession will be allowed, I can perhaps scarcely dare to hope; and yet in justice to myself I must profess that it is simply in the interest of the divine life which has been the noblest inspiration of history, that the views of this essay, and of all the others in this volume are advanced. Nor is this a use of language in any non-natural significance. If indeed any champion of a rigid creed does in his inmost soul regard the intellectual acceptance of that creed as *identical with* divine life, then there is no doubt but that the ideas here

* See especially Schleiermacher, "Ueber die Religion."

urged are utterly and fundamentally hostile to his position. But I have never known such a position to be assumed. On the contrary, men of every creed with one consent maintain that, though the belief of certain doctrines is necessary to religion, yet it is not to be identified with religion, because this is of the heart and not of the head. Religion, they say, is the "love of God shed abroad in the heart;" or it is "righteousness, peace, and joy in the Holy Ghost;" or it is that reconciliation to God which gives a consciousness of a filial relation: in any case it is not a cold intellectual opinion, nor a system of formal ceremonies; but a warm, bright creature of earnest life, praying, praising, mourning, rejoicing; blessing and regenerating the world. Now that is precisely the general idea, the essential significance of which forms the subject of this argument. Certainly any definition of religion, or any view of religious history, which would deny the profound reality of communion with God, the significance and power of prayer, or the sacred fire of evangelic zeal, must necessarily fall far short of the evident demands of fact. All evolution implies a divine Power; but the peculiarity of religious evolution is that it has to do with the dim apprehension of that Power in consciousness, and with the phases of increasing elevation and purity through which this conscious apprehension has passed. With these explanations we may now proceed to maintain and illustrate the comprehensiveness of the definition given above.

Mr. Herbert Spencer has been much blamed by many religious thinkers for making the reconciliation between science and religion to lie in the recognition on both sides that "the Power which the Universe manifests to us is utterly inscrutable." ("First Principles."—Cap. ii., p. 46.) Yet those who most strenuously object to this suggestion are in the constant habit of quoting, with reverential awe, many words of Scripture

which declare the unsearchable mystery of God's nature. "Canst thou by searching find out God? Canst thou find out the Almighty unto perfection? High as heaven, what canst thou do? Deeper than hell, what canst thou know?" (Job x. 8.) Such words as these are in familiar use to rebuke the arrogance of philosophy. But when philosophy learns the lesson, its humility is condemned as willful blindness. Yet the form of the sentence quoted above from Mr. Spencer, especially as coming from a writer whose every word usually deserves to be weighed, might have suggested that there is more room here for the germs of religion than is commonly supposed, at least by defenders of the faith. That any mere confession of mystery, apart from the effect of that mystery on certain inherent spiritual predispositions, is in itself sufficient to constitute religion, I do not for a moment allow. And it is much to be lamented that many* who approach the problem of the universe from the intellectual side, too often suffer themselves to be so prejudiced by the timid intolerance of ecclesiasticism, that they do not sufficiently weigh the significance of the moral power attached to genuine religious emotions. But this ought never to deter us from recognizing the principles which we hold in common with them, though we may have been in the habit of expressing those principles in a more emotional, and therefore perhaps in a less accurate form. Now "the Power which the universe *manifests to us*" must at least be an element in consciousness in such a manner as to keep us constantly aware that the world does not explain itself, and that everything, when we try to lay hold of its inmost reality, loses itself in an infinite exhaustless source forever prolific in finite life and beauty. In accordance

* I know of no reason for the application of this remark in the case of the writer quoted, whose language is always reverent. I refer, of course, to the school of thought with which his name is usually associated.

with this, I have elsewhere tried to explain how a true philosophy of ignorance retains, as an indestructible element in a fairly matured human consciousness, an apprehension of something beyond all fragmentary existence, the Absolute Being, at once the only true substance, and the One which constitutes the phenomenal world a Universe. But since mankind are so constituted that in one form or another this sense of an ultimate positive mystery is, whether perceived or not, mixed up in all their thoughts, while it occasionally shows itself with portentous energy; it is inevitable that attempts should be made to give practical expression to the feeling. And in such efforts we have the very first germs of religion.

That this sense of an ultimate mystery as a positive element in life is not impossible to uncultivated races, may be shown by the following extract quoted by Sir John Lubbock from M. Arbrousset, a French traveler in Africa. The latter mentions a conversation which he had with a Kaffir, named Sekese, on the subject of the Christian religion:—

“Your tidings,” said this uncultivated barbarian, “are what I want, and I was seeking, before I knew you, as you shall hear and judge for yourself. Twelve years ago I went to feed my flocks; the weather was hazy. I sat down upon a rock and asked myself sorrowful questions; yes, sorrowful, because I was unable to answer them. Who has touched the stars with his hands—on what pillars do they rest? I asked myself. The waters never weary, they know no other law than to flow without ceasing from morning till night, and from night till morning; but where do they stop, and who makes them flow thus? The clouds also come and go, and burst in water over the earth. Whence come they—who sends them? The diviners certainly do not give us rain; for how could they do it? and why do not I see them with my own eyes when they go up to heaven to fetch it? I cannot see the wind; but what is it? who brings it, makes it blow and roar, and terrify us? Do I know how the corn sprouts? Yesterday there was not a blade in my field, to-day I returned to the field and found some; who can have given to the earth the wisdom and the power to produce it? Then I buried my head in both my hands.”

This pathetic story is surely very true to that essential humanity which rises to thought when we contrast men with the brutes; and it may be said to describe the spiritual origins of all religions. The result, in this instance, does not *seem* to have been more than the sadness of baffled speculation. But in reality it was far more; for the subject of these thoughts was brought to a condition of susceptibility, in which any message like that of Christianity was welcome to his soul. For what he felt was evidently the longing after some practical realization of his place under Infinite Power. In an earlier and inferior age, when savage life was unstirred by any rumored wonders of civilization, and when the stage of human development was probably much lower than that which seems so barbarous to us, the same predisposition would manifest itself in a ruder form, with an immediate result in fetichism. A tree amidst whose branches the wind breathed unaccountable sounds, or a serpent, whose mode of progression could not be explained by any analogy to the action of the human limbs, was a form in which the ultimate mystery of existence pressed itself upon the awakening mind. And any actions designed to acknowledge human inferiority to the “inscrutable power” thus apprehended, were an endeavor after a practical expression of a conscious relation to the Infinite. Metaphysical notions indeed could have little place in an age like that, though their germs must have existed, or we should scarcely have the notions now. But though the word “infinite” and that inconceivable totality which it shadows forth to us might be unknown in that primeval time, still the sense of a mystery,—of something unsounded, unmeasured, incomprehensible,—worked on the rude savage very much as the idea of infinity does on us. It is the custom to think of fetichism with unmingled horror, as a sort of devilry made tangible by bestiality. And no

doubt, like all religious forms which survive the sense of reality in them, fetichism was corrupted from an expression of awe to a mere blind compliance with slavish and unreasoning fear. The same process has infected the original simplicity of Christianity with the slavishness of soul, which buys masses for departed spirits, and tolerates the sale of Church livings. And however stupendous the distance between the first feeble gropings of the religious sense and its grand development in the contemplations of St. John, it is equally true of both that they are not to be judged by the distortions and corruptions of a later day. The bloody rites, of which a reminiscence still remains here and there in the habit of daubing sacred stones with red paint, cannot be conceived without a shudder. But the association of religious ceremonies with ancient groves, whose solemn shades seemed to infant tribes haunted by some dread divinity, indicates to my mind an originally simple awe which had in it the very essence of religion. The facetious and noble author of the "South Sea Bubbles," in giving his notion of South Sea Island idolatries, suggests that when savages had been impressed by oddly-shaped stones, some shrewd fellow of their tribe would represent that the divinities presiding over them had appeared to him in his sleep, and given him a message which constituted him henceforward a priest. This is not improbable. But before the sacredness of the stones could be established, before the notion of a divinity could have any meaning, the rude hearts of the tribe, just struggling up from brute-life, must have felt some touch of conscious relation to the inscrutable Power, of which the stones excited dim suggestions in their hearts.

Every fresh stream of religious influence has always been purest at its source. In the present day this will hardly be denied of Buddhism or Mohammedanism; while it is the constant belief of every section of

the Church that such was the case with Christianity. But if this is so with all religions concerning the origin of which we have any record, analogy at least would suggest that the very first conceivable germ of the religious sentiment,—which I take to be fetichism,—might in the first stirring of its life be comparatively pure, although we know nothing of that aboriginal form except in a state of base corruption. At any rate, that fetichism did at some period prevail throughout the human race is an opinion which has already much to support it, and which will probably find increasing confirmation from every addition to our knowledge of religious origins. It need not indeed be maintained that every race now existing was within its racial life-time fetichistic, for the first germination of religious sentiment dates no doubt from a period long anterior to the divergent development of mankind into existing races. That man must have been removed far from brute life before he could worship even a serpent or a tree, is most true. But all fresh evidence on the subject of anthropology tends in one direction; it is ever adding millenniums to our estimate of the time occupied by the growth of humanity before the historic period. It is quite conceivable then that fetichism might have been at one time the universal form of religion, even if the memory of it had entirely perished from the earliest monuments of cultivated races. But as a matter of fact that memory has not perished. It is evidenced by hundreds of portentous forms staring down upon us from ancient temples and tombs; and there is scarcely a sacred rite of which we have any record, that can be wholly accounted for apart from some pre-existing element of fetichism. The serpentine emblems on stone circles; perhaps the stones themselves; the "groves" of Canaanitish idolaters; the Soma of the Persian mythology; the dog-headed or bull-faced deities of Egypt or Assyria, are all probably relics of

ancient fetichism. To suppose that an original nature-worship was narrowed down to the adoration of cats and dogs and crocodiles, seems most literally preposterous; for it puts the cart before the horse. Surely the idea, that a simple race, who found mystery in a few strange forms, gradually recognized an unknown power under every aspect of nature, seems far easier of conception than the notion that people, capable of conceiving one all-embracing Life, should have sunk to the veneration of trees and serpents.

In thus conceding the probability of the primeval or universal spread of fetichism, it may be thought that I am yielding more than is consistent with the view I have undertaken to maintain of the essential nature of religion. But there is at least this consolation, that by granting so much, we touch the bottom of the abyss. For no lower religious origins have ever been suggested, or can even be conceived.* And any definition of religion which, while it is sufficient to describe the grandest

* I do not attach much value to the theory that the earliest religion was a worship of ancestors, and originated in dreams of the departed. Offerings of food, or sacrifices of horses, dogs, or slaves at the grave of a hero, are not necessarily any indication of worship, since they are so obviously accounted for by materialistic notions of immortality. Indeed worship, in the sense of self-abasement before some transcendent majesty, never could have originated in this way. The appearance of a relative or acquaintance is familiar; and if the dream or the imagination of that appearance in another state of existence is attended with any feeling of awe, it must be an awe associated with that other state of existence, not with the familiar shape. But such a feeling would certainly imply an impression, already existing, of the mysterious background on which phenomenal existence rests. And for this feeling no origin can be suggested, other than the one stated in the text. That dreams of the departed should have worked themselves into the texture of a growing religion is in the highest degree likely. But it is quite inconceivable that such dreams should account for the worship of a black stone; and no theory of religion is complete which does not explain phenomena such as this.

spiritual contemplations, is also applicable to the lowest possible form of religious sentiment, cannot well be affected by any future discoveries. But if it should be retorted that, by making our idea of religion include the one extreme, we necessarily sacrifice the possibility of including the other, I reply, that the objection arises from an insufficient appreciation of the elasticity of the definition, and of its retention, under all applications, of precisely that which all religionists alike most prize in their own devotional forms. For what is it that a Wesley or a Keble counts so precious in the faith that he professes? One may say it is its power to save the soul, and the other that it is the access which it gives to sacraments of regeneration. But if the former were pressed for the meaning of salvation, he would not be content to define it as deliverance from hell; he would say its essence is reconciliation to God. And if the other were urged to say why he counts so precious the sacraments of regeneration, he would account for his devotion to those forms, not by any unintelligent obedience to an authoritative tradition or command, but by his aspiration after the divine life which eternally flourishes in the City of God. But under this farther explanation, each would accept the faith of the other, or at least the spirit which animates it. And if then we inquire for ourselves, what is that one thought which makes reconciliation to God and the inheritance of a heavenly kingdom parallel and convertible expressions, we find that it is a sense of relationship to an infinite sovereignty, and a desire to give to this relationship some practical form. It may, indeed, be said that by an "infinite sovereignty," both Wesleyans and Anglicans would agree in meaning something much more distinct to their own thoughts than anything necessarily suggested by so vague a phrase as the Infinite. They mean a Personal Sovereign, who has been revealed in certain historical events

and authoritative utterances; and they would decline to recognize as religion anything which did not imply a substantial agreement on such points. But this is only to open again the endless maze of controversy on the connection of faith and opinion.

We have already seen how hopeless that question is, on the hypothesis that any disputable opinions are necessary to faith; and I am not going to recur to it now. The opinions to which we have referred may be quite true, and there is certainly more in them than is usually allowed by agnostic philosophers. But that does not in the least affect our position here. For, however much the Wesleyans or Anglicans may prize the particular forms under which they conceive an infinite sovereignty, their very position as religionists implies, that what they care for most is not so much intellectual consent to their belief, as the attitude of loyal obedience which it begets. This latter then, not the former, is the essence of their religion; and it amounts in effect to a practical expression of their conscious relation to the Infinite. The question whether, and to what extent, the one element is separable from the other, is one which doubtless needs a more thorough discussion than we have given to it yet. But the one point upon which I now insist is, that the idea of religion, as an endeavor after a practical expression of our conscious relation to the Infinite, does include the inmost essence of the most earnest forms of Christianity.

Any endeavor to show that the definition equally includes the humble beginnings of religious history labors inevitably under considerable difficulty, owing to the great obscurity of the subject. It is impossible to accept the degrading rites of existing savage tribes as a sufficient exemplification of original fetichism. For what we want to catch is not a form, but a spirit; and that is necessarily evanescent, leaving an unmeaning

symbol behind it. For the illustration of the manners, customs, dwellings, and implements of prehistoric man, existing barbarism may furnish ample resources; because the figures of a dance, the form of a house, the shape of a hatchet may be repeated with monotonous imitateness from age to age; just as the cells which build up bodily tissues from birth to death continually repeat their predecessors. But our observation of these cells gives us no insight into the vital activity which first developed the differentiation of tissues. The savage's mechanical reproduction of a polished stone hatchet precisely like its predecessor gives us no understanding of the original impulse which developed man into a tool-using animal, or of the spirit of enterprise which led to the exchange of chipped flint for polished obsidian. And so the offerings solemnly made to a black stone, or the dances performed around a bunch of feathers help us very little to understand the impulse which originated fetichism.

The difficulty is all the greater because the mysterious inspiration which animates mankind in the march of progress has not apparently operated equably nor yet constantly; and in its critical phases never repeats itself. By the development of some special gift and the acquisition of superior weapons, some few races have driven out others from their possessions, and established themselves lords of all accessible lands that seemed worth having. Only in outlying districts, of forbidding aspect, and barren in the resources of life, would the older and lower races find a temporary refuge; until a fresh wave from some center of vigorous life drove others into the same regions and completed their extermination. Thus it happens that the primeval relics found in the quaternary formation seem to suggest an equability of advance over all the world, such as is against all later analogy. The tribes who first fabricated weapons of chipped flint would drive out others who used only

unwrought stones or branches broken from trees; and the latter would find an asylum in lands shrouded in forest gloom or bristling with ice. But the races who began to polish their weapons and vary their forms, would, if not by the superiority of the new arms, at least by the greater enterprise and vigor which these suggest, overcome the possessors of chipped flints, and drive them upon their banished brethren, who would then disappear from the earth. The same fate would, at the hands of the wielders of bronze, drive out the conservatives who adhered to polished stone and so make chipped flints, over large portions of the earth, a thing of the past. Such a process would account for the universal prevalence of implements of the same or similar forms, which, being thus carried abroad by successive waves of forced emigration, and buried in recent formations, the age of which it is difficult to determine, seem now to give evidence of a contemporaneous progress embracing all mankind at once. But such a conclusion is surely as fallacious as it would be for some future antiquary to conclude, from the gun-flints or gun-barrels dug up here and there all over the world, that fire-arms were an invention common to all mankind, and adopted by all races at about the same period. The same argument may be applied to signs which exist of a universal prevalence of fetichism. For that universal prevalence does not at all prove that this lowest form of religion is only the spontaneous and inevitable corruption of human faculties rotting in the darkness of barbarism. It may well be that it dimly records some very ancient and simple but truly spiritual impulse, by which a primeval tribe, or at most some one or two races here and there awoke from a life hardly more than brutal, and by a real regeneration were made sensible of the mystery of existence.

Another fact, to which we have already alluded, ought to be remembered before such a suggestion is

hastily condemned. Religious progress, according to all analogy, differs from the advance of material improvement, in one respect most important to our argument. For it is at once swifter and slower, marked by grand impulses which we trace to inspiration, with longer or shorter intervals of inaction. Not every day comes a Pythagoras or a Mohammed, a Moses or an Elijah. And the interval between such inspirations has been hitherto almost always marked by a loss of the original spirit, together with a blind conservatism of traditional forms, which, while pretending to resist all change, necessarily favors the most hideous of all changes—corruption. That this has been the case with Brahmanism, Buddhism, Mohammedanism, nay, even with Judaism and Christianity, no one will deny. Is it not then possible that the same thing may have been true of Polytheism and even of Fetichism? But this, to the probability of which all analogy points, is the only assumption which we need to enable us to find in Fetichism not only a veritable reminiscence of man's earliest steps in religious progress, but also an illustration, clear from its very simplicity, of the essential nature of religion.

As I have admitted, so spiritual a reverie as that of Sekese, above quoted, is scarcely to be attributed to any of those remote progenitors of our race among whom we must suppose Fetichism to have originated. But if the motive of that reverie, awe-struck wonder and longing, be conceived as roused to action by some single object, it may very well represent at once the origin of Fetichism, and the awakening of the religious life in man. A mountain, now veiling its head in storm clouds, now scattering light from spires of ice; sending forth rushes of impetuous floods, or hurling avalanches into the valley; might well strike the savage in some meditative mood with awe, which is not far from worship. Even a stone of unusual shape, or of different texture from the surrounding rocks, could

not fail to arrest the attention, and excite wonder, which also points toward worship. Such feelings would inevitably dawn in many minds, without taking any form of distinct expression in consciousness. If, then, any man arose with unusual imagination and peculiar susceptibility to the power of mystery, together with the impulse to put his emotions into words, he would find the minds of his tribe like dry tinder to the sparks glimmering in his soul. The mysterious object, which his imagination invested with life, would become the palladium of the tribal home, the sanction of vows, the center of the loyalty which gave unity and power. No doubt any language which we may use after so immeasurable a lapse of time, and after changes far greater than are easily conceived in the constitution of human nature, must import into our conceptions of that remote period some elements of feeling and thought which would have been impossible then. But making due allowance for that, the evidence which we have of the prevalence of Fetichism, among tribes who had no opportunity of corrupting a more spiritual religion, leaves little doubt but that some such process as the one suggested must have formed the earliest beginnings of religion. And the first effect of such an experience on creatures, hitherto not far removed from brute life, must have been to quicken the latent germs of moral feeling within them. For whatever foundation there may be for utilitarian doctrines as to the *standard* of morality, the *sanction* which makes that standard binding has always, as a fact of experience, been found in a sense of obligation to some mysterious greatness asserting claims upon our obedience to which we can set no limit. Apart from such a recognition of the mystery of being as is distinctive of man, it may safely be affirmed that the peculiar awe which we associate with the sanctions of moral obligation could have no existence. And the unknown prophets of Fetichism who first called

into distinct consciousness, on however limited a scale, that recognition of mystery, did a moral and religious work, which, difficult as it is to estimate it now, must have been a great step in the progress of the race.

According to the hypothesis which is here suggested, the tribe or tribes, amongst whom such a rude religious movement arose, would be favored in the struggle for existence by the moral energies which were thus awakened. Or that movement would be only one evidence of a superiority which showed itself also in the improvement of weapons and strategy. But wherever such conquering tribes drove out or enslaved their rivals, there they would establish the religion they brought with them. And as the original objects which suggested it were often of necessity left behind, the want would have to be supplied,—either by phenomena of the new country as nearly similar as could be found; or by objects unsimilar but equally mysterious; or by rude representations of the original fetich, such as perhaps formed the first beginnings of idolatry proper. But, as already said, such a movement never keeps unimpaired the character of its original impulse. Sacred awe too easily degenerates into slavish fear. The worship paid to an object from a sense of its mystery would be continued from mechanical habit when no feeling of mystery remained. And the savage associations of warfare with the slaughter of captured foes at the tombs of slain heroes would introduce into fetichistic ceremonies of worship blood-stained rites, from which in all probability they were originally free. But into such corruptions we need not follow the original idea. For all that is of importance to the present argument is the probability that the original impulse to fetichism was a sense of some mystery, which excited the tendency to worship. And I maintain that this mystery, if even it were associated only with a black stone, was a rift in the low

clouds of savage life, through which Infinity looked in.

It is necessary here perhaps to repeat and confirm a profession already made. Nothing can be further from the purpose of this argument than the maintenance of what is really meant by the purely natural origin of religion. In dealing with such subjects it is confessedly difficult to give an exact meaning to words. And the difficulty is of course pre-eminently great in regard to phrases which embody popular feeling. Such feeling may be very genuine, and may have a perfectly adequate and legitimate cause; while at the same time, from the nature of the case, for a precise appreciation of the real significance of the feeling we require an estimate of spiritual facts, rather than of phrases; and may often be compelled to give the latter an interpretation which the popular mind is slow to recognize. Take for instance the pathetic insistence of the earnestly devout on the need of a "revelation." By this is usually meant some *miraculous* communication from God to man. But if we ask for a definition of a miracle, we get very different answers; some explaining it as an arrest or diversion of the order of nature; others, as the supersession of a lower law by a higher; and others, again, merely regarding it as an event, the causes of which are beyond the range of any investigation possible to contemporary science. It is difficult to see how any of these definitions can be made serviceable to the purpose for which they are given, that is, to enable us to distinguish historical divine communications to man. But under this variety of view we cannot help recognizing as a great spiritual fact the one pervading feeling, that the reality of religion stands or falls with the actuality of *some* communication from God to man. Men may cling to the tradition of a supernatural voice that sounded from a mount burning with fire, and to the narrative of a birth for

which no physiological science can account; but it is not these things in themselves that they care for, it is the reality of a divine utterance to the soul of man. They argue, indeed, as though the possibility of any genuine religion were essentially bound up with the actuality of these or similar historical events; but that is only because they do not see how on any other hypothesis the fact of divine teaching can be maintained. Could they be brought to see this, their whole view of history might be changed, without the least injury to the vitality of their faith. The historical reality of St. Peter's episcopacy at Rome, and the fact of a divine commission of universal primacy to the apostle and his successors, seem to the Roman Catholic essential to the validity of the claims which Christianity makes upon his conscience. But the whole importance of these articles of his belief consists in their supposed necessity for the proof of a divine communication to mankind. Yet if he learns to substitute the authority of the Scriptures for the supremacy of the Roman See, he does not in the least degree lose his confidence in the fact of a divine message given to the world. He has only learned that it may be authenticated in a different manner. It may be said that he still keeps what he believes to be an infallible standard of dogmatic truth. But suppose such a man gradually to be convinced,—in these days no uncommon process,—that the Book is by no means free from error. Experience shows that he may still preserve his reliance on a divine revelation, guaranteed by miraculous events, which he regards as historically trustworthy. He is still sure that God has spoken to man. The only difference is that the records of divine utterance require care and discrimination to be exercised by the "verifying faculty" in himself. And this is the stage which has been reached by a large number of the thoughtful public in our own day. They have given up Church authority;

they have given up Biblical infallibility; but they persist in resting their confidence in the reality of divine teaching on the credibility of certain great miraculous events. We have already seen how cruel it seems to make our participation in the blessings of God's teaching dependent on the issue of doubtful historical arguments; and to that point we do not recur. My only object in this digression is to estimate the feeling which prompts the objection, that such a view of the history of religion, as that which I am trying to explain, is inadequate to the satisfaction of the craving for a veritable message from God. This feeling is best expressed by the pathetic words of the Psalmist, "I am a stranger in the earth: hide not thy commandments from me;" and those commandments are identified with a genuine inspiration of mankind by the divine Spirit. Hence in many popular lectures and treatises the question at issue is said to be this, "whether God has spoken to man or not." The faith which is deeper than all historical beliefs, stronger than all chains of syllogism, passionately asserts that He has; and over against this position, as contradictory to it, the same faith sets the idea of the purely natural origin of religion.

It is in this sense of the latter phrase that I have disclaimed, and do most earnestly deprecate any idea of maintaining the natural origin of religion. For most firmly am I assured that God has spoken to man, nay, is speaking to us each forever. But there is a sense in which the natural origin of religion may be affirmed without the slightest sympathy for the sort of naturalism which devout minds justly dread. "The heavens declare the glory of God," exclaims the Psalmist, "and the firmament showeth His handiwork. Day unto day uttereth speech; and night unto night showeth knowledge. There is no speech nor language; their voice is not heard. Their line is gone out through all the earth, and their words to the end of the world." And

then, with an insight amazing in that early time, he finds in the moral order which claims the inward kingdom of the heart, an analogy to, and a reflection of, the eternal reign of law shining out in the march of sun, moon, and stars. "The law of the Lord is perfect, converting the soul; the testimony of the Lord is sure, making wise the simple. The statutes of the Lord are right, rejoicing the heart; the commandment of the Lord is pure, enlightening the eyes." Let it be granted that the words here have special reference to Mosaic legislation. Yet the tone of prophetic fervor, and the well-known habit of the devouter Hebrews, who regarded "the testimony of the Lord" as a living word direct to the contemplative soul, justify us in seeing in this psalm recognition of a true divine revelation through nature as realized in devout contemplation. If it be said that such a recognition would have been impossible apart from a preceding succession of miraculous events, we might reply that this is very much a question of historical criticism; because if the miraculous events did not happen, as many, who have given great attention to the subject, maintain they did not, the psalm is still here to testify for itself. But at any rate, I may be permitted to use the Psalmist's contemplation of the heavens to illustrate the sense in which the natural origin of religion might possibly be asserted, without any offense to the irrepressible faith of mankind in the reality of a divine utterance. For the royal prophet saw God's rule in the order of the sky. He saw this because an inward voice prompted him to this interpretation. And in his loyalty to the predispositions thus awakened consisted the glory and the power of his faith.

Now, if it be only granted that this conjunction of the impressiveness of nature with predispositions divinely established in the soul is capable of various degrees, the suggestion made above, with regard to the remote ori-

gin of religion, may be accepted without any fear of eliminating the voice of God from history. For the awe which was enkindled in the breast of the savage by the strange natural objects which attracted his worship, so far as it was the beginning of a higher life, may surely without irreverence be regarded as a veritable inspiration. If any are shocked by such a thought, it will probably not be those who most strenuously insist that the being of the Most High is equally unimaginable and ineffable. Those most likely to be offended are they who are convinced that a verbal revelation has enabled them to conceive the Eternal truly as He is. Yet they feel no difficulty about the narrative which tells how Abraham recognized a divine command in the suggestion that he should make a burnt-offering of his son; they in all probability think it reasonable and likely that the same patriarch should expostulate against divine judgment on Sodom and Gomorrah, talking "as a man with his friend;" they see nothing but benign condescension in the divine procession between divided beasts, by which God is represented as taking a solemn oath according to the formula then in vogue; the limitation of the dew to Gideon's fleece, or its miraculous dryness, in answer to a needless and capricious demand for a sign, appears quite in accordance with the natural order of times in which God is supposed to have ruled the world on principles since laid aside. But if any one ventures to suggest that in the old time before those fathers, good and really divine impulses might be disguised, as such impulses always are in their infancy, by the operation of brute instincts eventually to be superseded, he is in danger of being charged with an irreverence little short of blasphemy. Yet those who make the charge, if the religious teaching given in their schools be condemned because of the gross conceptions it gives of God's anger against sin, and of His vengeance in the unseen world, will often reply that purer

ideas are impossible to children, and that this is the divine course of education. Whether that be so or not, I will not stop here to dispute; but the principle implied in the retort is undoubtedly sound; that the lowly beginnings of religious life are often strangely unlike its fruition. And that principle I take leave to apply to the case in hand.

The poor flint-wielder, that first Adam, who perhaps yet bore indubitable traces, in body as well as in mind, that he was "of the earth, earthy," was incapable yet of sharing the pathetic wonder of the far-advanced Sekese at the glory of the sky and the mystic vitality of the corn. But he was at least capable of comparison between hard and soft, curved and square, black and white. He knew when he saw a strange form which would not fit into his experience. And an oddly-formed black stone might very well arrest his attention. To invest the unusual and unknown with unknown and indefinite powers, would, as we have suggested above, be the work of a prophet of the time. But at a certain stage of development the whole tribe would be susceptible to his influence. Then the fetich would become the sanction of vows, the guard against pestilence, the source of vengeance against treachery. And though the cultus which sprang up might be speedily corrupted with impurity and cruelty, there is nothing in this which ought to condemn as impious the attempt to trace religion up to such a source. The massacre of the Canaanites was in a very clear sense an act of worship. Yet surely they are right who contend that in this case the religious life of the slayers was superior to that of the slain. There are rites described and judgments commanded in the Mosaic Law, which the Christian in spirit cannot read without horror. But not the less do we insist on the divine legislation of Moses as one of the greatest prophets whom the world has known. The cruelties and superstitions were no proper consequences of the im-

pulse which he gave. They existed before, or were inevitable perversions wrought by pre-existing, and as yet ineradicable tendencies. And so it is quite conceivable, loathsome as are the abominations which we now associate with fetichism, that in its first origin it was a real impulse toward the invisible world; and that the strange objects, round which it gathered its power, first touched the awakening souls of men with that weird sense of the immeasurable, which afterwards ripened into consciousness of a relation to the Infinite.

Should it be still objected that such a view has precisely the effect which I deprecated—of denying religion to be in any sense a revelation—I must venture to appeal to the whole view of existence maintained throughout this volume. For, believing that the whole universe, in matter and in spirit, is creatural when seen fragmentarily, divine in its real totality; believing that it is man's highest distinction to obey the inspiring predispositions which draw him to contemplations of the dimly apprehended yet forever unknown Infinite; were I to suppose the faintest movement toward that divine life to be possible apart from genuine inspiration, it would be nothing short of intellectual suicide. What is really opposed to any idea of revelation is not this suggestion of its gradual dawn; but that atomic theory of nature which would make both dawn and noon equally meaningless. For that does undoubtedly assert, in a very real sense, the purely natural origin of religion, that is, its appearance without any breath of divine impulse. The notion would be something of this sort: that, at a particular period of human development, the brain molecules of a certain tribe came to be so arranged as to be peculiarly susceptible to the kind of agitation which is realized, on the conscious side, as wonder or awe; and farther, that the form in which the rays of light were reflected by some strange object upon the retinas of a few men in the tribe excited that brain

agitation to such a degree that, through sympathy, it was communicated to others. Still farther, on this hypothesis, it would be added that there is no other explanation needed; that in fact the brain molecules and their agitations were the ultimate reality, beyond or on the other side of which there was nothing whatever. Now that is precisely the view of religious history against which I am arguing and protesting. I admit the nerve-cells, brain molecules, vibrations, and all the physiological phenomena which can be alleged. But I insist that all these are the phenomena by which the Unknown is fragmentarily manifested; and farther, that these phenomena were so connected with succeeding ones as to form a continuity which we call religious history. This history irresistibly raises in our minds the idea of purpose or plan. And though we feel this idea to be something distinctively human, by which we dare not allege that God is limited; yet as we may not think lowlier of the Infinite than of ourselves, and cannot in this matter think anything higher, we will use that idea of a divine purpose as a symbol of what is assuredly immeasurably vaster and better than all our thoughts.

I have dwelt at some length upon the significance of fetichism; because it seems to me that any theory of religion must be unsatisfactory which is unable to include it, not only as fact, but as one of the earliest, if not the earliest, of all religious phenomena. In regarding it as a stage of experience through which every race of man that ever had a religion must originally have passed, or the results of which must have been inherited by later races from their progenitors, I may be assuming too much; or rather I may be anticipating the issue of researches not yet carried far enough to justify a definite conclusion. But my object has been to put what seems to many the most unfavorable case that can possibly be made out against any divine meaning in religion,

and to show that even assuming this to be established, a true theory of the essential nature of religion will point to an undeveloped spiritual significance underlying even the oldest superstitions. Yet that theory is not in the slightest degree dependent on the establishment of the case which has been put. For should it yet be proved hereafter, as seems but little likely now, that the earliest days were after all the golden age, or that pure monotheism at some period burst upon the world with the suddenness of a tropic sunrise; still it would be true that the essence of religion is an endeavor after a practical expression of man's relation to the Infinite. But that needs farther illustration.

III. NATURE-WORSHIP.

IN any progressive race, fetichism would inevitably grow into the worship of Nature. To those who regard only the effete superstitions of stagnant savage life such an assertion may seem in the last degree improbable. But if they would only try to imagine the sense of larger life that must have been awakened by the first flutter of reverential awe in the dim humanity not far removed from brute unconsciousness, they would feel that so long as the emotion continued to be a vital element in an expanding nature it was sure to find continually greater and nobler objects. In many tribes the mystic feeling awakened by fantastic groups of stones might be satisfied and stereotyped by ceremonies, which came to be merely traditional habits. But in some one tribe that feeling might be extended to a tree growing by the side of the objects of reverence, or to a serpent which glided out from their shelter. The processes of the organic creation, pressed in some simple form upon wondering minds, would open far nobler contemplations than could be offered by mere singularity of shape. And under favor-

able conditions, a *seer* like the above quoted Sekese might become the prophet of a new and purer religion. Such a speculation is not without some hints of support from the complex phenomena of ancient systems. The monuments of Egypt, at least as they are described by ancient travelers and neo-platonic interpreters, would seem to have presented many signs of a very earnest recognition of the world's mystery. The inscription on the temple of Isis, "I am all that hath been, is, and shall be; and no mortal hath uncovered my veil," is a pregnant illustration typical of many others. But yet a worship, which could rise to contemplations so sublime, was for the most part exhibited as a cultus of brute life. "Animal worship," says the Rev. John Hunt,* "is usually the lowest form of idolatry, and the mark of a low degree of civilization; but in Egypt it prevailed among a people famed in antiquity for cultivation and learning, and had its roots in a philosophy of being. We must distinguish between the worship of animals, and the worship of them as symbols: the latter was that of the Egyptians; it did not obscure the worship of the Gods, but was rather connected with it." When, however, we try to realize to ourselves by what process of thought or feeling, and precisely in what sense this apparently repulsive cultus was connected with the worship of gods, or "grew out of a philosophy of being," it seems incredible that an originally spiritual idea of the divine nature should seek to clothe itself in such ignoble forms; or that a dignified "philosophy of being" should of its own proper impulse express itself in the mummification of cats and dogs.

It is surely much more rational to suppose, that on a primeval fetichism there was superinduced an ever-grow-

* "Essay on Pantheism," Longmans, 1866, p. 48. I take this opportunity of acknowledging many obligations to a work, which compresses a library into a volume.

ing perception of the mystery that underlies, not strange objects only, but all things that are. This feeling, accustomed to fetichistic expression, would take form in the attachment of a larger significance to the objects of reverence, and in the invention of idealized objects more easily associated with the larger feeling. The conservatism, which peculiarly characterizes religious worship, will amply account for the retention of fetichistic symbols long after the narrow conditions of thought existing in an earlier age had been overpassed; while at the same time this perception of universal mystery would quicken the reflections that necessitated a philosophy of being. The two tendencies would obviously unite to convert the old fetichistic objects into symbols of the occult powers which entered into the new theories of life. The original religions of the Aryan family all bear traces of some such process as this in the history of their development. It is no doubt a fine conception, that the oldest Aryan name of the supreme deity, "Dyaus," the Shining One, points to a time when our primeval forefathers worshiped the bright Spirit who fills the realms of space. But here again it is difficult or impossible to conceive that in sober fact a dead and degrading fetichism was ever superinduced upon a worship so sublime. Yet the traces in Brahmanism of an aboriginal fetichism seem too clear to be denied. If, as Creuzer says, "in the earliest stage of the Hindoo religion the supreme deity was worshiped with bloodless offerings, such as the fruits of the earth and milk of cows," it is tolerably clear that such a cultus was inconsistent with any spiritual idea of God. The early elemental worship, said to be proved by the Rig-Veda, is quite consistent with the course of development which I have suggested in the case of the Egyptian religion. It resulted through the extension of the sense of mystery from single objects to the whole of nature. And,

apart from such a process, it is impossible to understand how the Hindoo idols can have continued to be of such a degraded type; or how the relics of tree and serpent worship could have been so generally intermingled with the ceremonies and the symbols of Brahmanism. Mr. James Fergusson, indeed, holds that serpent worship is properly characteristic of the Turanian races, and certainly owes its origin to them alone; while he accounts for its practice by the Aryan races through the contact of the latter with the aboriginal tribes whom they supplanted. It does not, however, seem very likely that the higher race would be ready to adopt the superstitious practices of the lower whom they despised. Nor is the supposition necessary in order to retain substantially Mr. Fergusson's theory. The Turanian races may fairly be regarded as more nearly representative of that lower humanity from which they and the Aryans alike have sprung. That lower humanity may be supposed to have generally practiced fetichism of the low and cruel type represented by serpent worship. This the Aryans still continued to cherish, when a higher development had raised them above the parent stock. But to it they soon added a nearer approximation to a pure nature worship; while on the other hand the slower Turanians preserved their old religious habits intact, or only received from their more advanced brethren the suggestions of a higher culture.

If we turn to the more poetic worship of the Greeks, we find the sense of nature's mystery almost merged in the joyful recognition of a universal life, which throbs in the sea, and murmurs in the streams, and thunders in the storm; which finds a sort of rhythmic expression in all animated nature; and rises to intensest utterance in the emotions and the beauty of human life. But the Greeks were not without their traces of an aboriginal fetichism. It is well known that the most sacred images

were not the ablest works of art, but that such far-famed divinities as "Diana of the Ephesians," and the old Athene of the Acropolis, were characterized by a monstrous or barbarous form, dating back from those earlier beginnings of symbolic idolatry, which, as suggested above, in all probability marked the transition from previous fetichism. Images which "fell down from Jupiter" naturally suggest meteoric stones. The sacred oracle of Dodona, the most ancient of which we have any record, is certainly indicative of tree worship. And the association of particular trees with special divinities, as, for instance, that of the oak with Zeus, of the laurel with Apollo, of the olive with Athene, and of the vine with Bacchus, would appear to point in the same direction.

But it is not my intention now to write a history of the development of religion. It is sufficient for my purpose if it shall appear that the idea of this history, which will in all probability ultimately prevail, and than which no theory would seem at first sight more unfavorable to the reality of the divine life in man, is at all events perfectly consistent with the suggestion, that mankind have by inherent predisposition a tendency to recognize their relation to some transcendent and all-embracing mystery of existence. No matter how rudimentary, or how liable to debasing perversions the earliest expressions of this feeling were; still, if by its own law of continuity this feeling has manifested itself in ever more expansive and lofty forms, consistently with man's wider comprehension of life, we may fairly argue that religion is as legitimate a fruit of human development as science, or commerce, or art. We can no more eliminate it from our total conception of the ideal human life, than we can exclude social loyalty or intellectual ambition. At the same time we may need perhaps a better understanding of its essence, and one that will more completely explain the whole of its historical phe-

nomena. And such an understanding appears to be furnished by the conception of religion as man's endeavor after a practical expression of his relation to the Infinite. When first the earliest savage was startled by strange natural forms which gave him a weird feeling of veiled power, the sense of the Infinite dimly dawned in the human world; and the simple ceremonies, which too readily degenerated into cruel orgies, were at least an expression of the fearful subjection that afterwards ripened into reverential loyalty of soul. The extension of the sense of mysterious power, from a few strange objects to all the energies of Nature, was accompanied by an expansion and a refinement of feeling, such as was by no means always adequately expressed in the cultus of more highly developed religions. If we would find that awe of the powers manifested in nature which seems to loom through the deep shadows of Egyptian temples, or that eager sense of animated beauty which has adorned the religious monuments of Greece, we must not look to priestly sacrifices, nor to ceremonies of forgotten meaning, but to the great minds who summed up in themselves the growth of millenniums, and who, in their union of intellectual force with spiritual susceptibility, have been amongst the Aryan race what the prophets were among the Jews.

The tone of *Æschylus*, for instance, impresses every student with the earnestly religious nature of the man. It is true that the religion on which he insisted was to a large extent one of gloom and terror; but this may be partly explained by his hostility to political innovations, a feeling deeply rooted in the formal associations of an ancient faith, and one which led him naturally to exhibit the more threatening aspects of his heartfelt belief. But in his poetic realization of the dread sanctions guarding time-honored objects of reverence, one cannot but recognize a solemn and ennobling feeling of man's constant relation to transcendent powers.

which were only inadequately expressed in the national cultus. The reader of the Eumenides is startled to find himself touched by a sympathy half awful, half pathetic, for the repulsive Shapes which proclaim their wrongs with shrieks that suggest tears of blood. But these shapes float dimly on a darkness that is sacred. Behind them is the everlasting verity of a justice upheld by infinite Power. The rugged majesty, characteristic of both the conceptions and the style of this prophetic poet, is inspired and maintained by deep moral sentiments which, whatever their mistakes, show a pathetic loyalty to the supremacy of a supernatural and inscrutable rule. The demand for cleansing by blood, to be effected by dark and dreadful rites, impresses the imagination even of unsuperstitious ages with a strange satisfaction. Considered apart from their tragic surroundings, in bare and prosaic reality, such ceremonies might appear irrelevant and puerile. But the satisfaction, which we feel in the poetic imagination of the claims pressed by the Furies, arises from a sense of adequacy in the tragedian's realization of the sanctity of eternal law.

There is not the same wild grandeur in the poet who followed next in time, and who, according to the critical judgment of many, attained a higher poetic rank. But Bishop Thirlwall's essay on "the Irony of Sophocles" brings out with great power the background of mysterious and resistless fate, upon which the graceful fancy of the poet played. Nor are there wanting in the works of Sophocles strains of melodious music, in which the sunbeams that glint over running streams, and the dark olive shadow, and the sweet recesses of the hills, seem to betoken more of that sense of something mystic in the beauty of nature than is often attributed to the classic age. Of Euripides let it suffice to quote the words in which a living poet perhaps intellectually greater, but certainly inferior in powers of rhythmic expres-

sion, makes him a voice from the dead :—

" Five hundred years ere Paul spoke, Felix heard,—

How much of temperance and righteousness,
Judgment to come, did I find reason for,
Corroborate with my strong style that spared

No sin, nor swerved the more from branding
brow

Because the sinner was called Zeus and God?
How nearly did I guess at that Paul knew?
How closely come, in what I represent
As duty, to his doctrine yet a blank?"

I prefer to take these poets rather than philosophers as exponents of the religious life of Greece. For, to attempt to gather from these latter any conception of the national religion, would be to commit the mistake of confounding religion with intellectual systems; a mistake which almost every age discovers, and then proceeds to perpetrate afresh. But there was one man of a later day, who though not a Greek by race, was to a certain extent naturalized in the realm of Greek feeling and thought, and who, clothing the teachings of a philosopher in the language and rhythm of a poet, stands out like a portent from the general level of superficial Roman literature, as the prophet of atomic atheism; a man, whom we conceive with wild burning eyes, contemplating in ecstasy the order of heaven and earth; stung with scorn for a peddling priestism trading on slavish fear; while he fastened with eager daring on the assurance that the world wide vision which enthralled his soul need not be, and could not be, explained by anything greater than itself. No reflections, however slight and hasty, on the evolution of religion can possibly leave unnoticed the fascinating and startling figure of Lucretius. Professedly abjuring all to which it would be worth while to give the name of God, he yet speaks with a deep solemnity of tone, such as awakens in the most reverent heart sympathies apparently unaccountable. While he declares, in words, that there is nothing inexplicable, and

that the whole frame of the universe is an inanimate structure of soulless atoms, there is nevertheless a wistfulness in his gaze, and a tenderness in his admiration, such as are inevitably suggestive of mystic feeling. Magnifying the human intellect with daring assertions of equality with heaven, such as taken by themselves alone might appear symptomatic of ignorant arrogance, he yet shows on the whole a feeling of the greatness of the universe, such as evidently produces in him the fruit, not of sullen acquiescence in the inevitable, but of loyal submission. And that seems near akin to the very soul of religion. The truth is, his philosophy is incongruous with his genius. He ought to have lived,—if we may presume to say that anything ought to have happened which has not,—in an age of keen religious life such as feels eternal God to be more real than the fragmentary world of phenomena, and which, losing all old shadowy forms in the dawning of a bright regeneration, interprets the Ineffable only by the most ennobling and unselfish inspirations of the heart. In such an age Lucretius, recognizing in religion not a blasphemous contradiction to nature but an apprehension of the mystery which all nature owns, might have been a saint, an apostle, a martyr, though never a genuine priest. His sense of the supreme worthiness of natural power, and his insight into the true sublimity of universal order, were outraged and tortured by the impious and ridiculous meanness of the interpretation religiously put upon the government of the world. And the agony of his indignation appeared to be soothed and healed by a system of thought which vindicated the supremacy of nature, and making the world its own explanation, banished Olympian demons into nothingness or futility. But throughout one can hardly help feeling, that the vehemence of emotion with which religion is repudiated is a religion in itself, and has a mani-

fest place in the development of that veneration which is one expression of man's relation to the Infinite.

“When human life lay prone, a shame to see,
Crushed to the earth by stern religion's sway,
Who, down from heavenly regions stretched
her head
With horrid aspect, threatening mortal men,
A man of Greece first dared return the gaze
From mortal eyes, and first rebellion raised.
Him never lightning, sacred fanes, nor
heaven
With threatening roar could daunt; nay,
roused the more
The eager valor of his soul, which longed
First to break through the bars of nature's
gates.
Then keen, strong intellect prevailed, and far
Beyond the flaming walls of the world he
ranged,
And all the immense explored with mind
and soul;
Then, conqueror, brings us news of what
may be,
What may not; nay, of the very law that
deals
To everything its force, and fixes bounds.
So in her turn, religion underfoot
We spurn; and victory evens us with
heaven.”*

The loyalty expressed by these words to that stately order of material things, which had been traduced and blasphemed by the slavish fears of superstition, is itself a spiritual sentiment, such as no merely intellectual opinions can altogether neutralize. Indeed, this susceptibility of the poet's nature to the mystic aspects of man's relation to the universe is illustrated clearly enough in many a word of tenderness and eager desire. Take, for instance, his opening appeal to Venus,—joy of men and gods, through whose power, beneath the gliding stars, the sail-flecked sea and all the pregnant fields of earth are crowded with life; the bright presence from which winds and storm-clouds flee away—which the sweet spangled earth greets with springing flowers; under which the sea is wrinkled with smiles; while the quiet heaven beams with all-pervasive light.† Or again, take the

* “De Rerum Natura,” I., 62-79, Lachmann's Ed.

† “De Rerum Natura,” I., Invocation.

opening of the fifth book, where— notwithstanding his intellectual confidence—he shows how, to the emotions of his heart, the grandeur of the world surpasses all human expression. Such passages as these betray something very like a religious sense of man's subordination to a universal Life. True, the personality of the goddess is to him only a poetic figure. But that, to express which he feels the need of this poetic figure, the profuse beauty, the warmth and light and living wealth that crowd the world; all this is to him a transcendent reality. In truth, taking him all in all, in his intellectual keenness, in his realization of a Universe, in his enthusiastic contemplation, in his adoration of the majesty of order, in the sublime daring with which he confronts the everlasting problem, the individual against the All, we cannot help seeing in Lucretius the utmost result possible to mere nature-worship, apart from a deeper inspiration.

IV. PROPHETIC RELIGIONS.

BUT the working of that deeper inspiration now demands our attention. There are symptoms of it in such men as the tragedians of whom we have spoken. There are far more in Socrates, considered as a spiritual leader rather than a philosopher. For, however much we may allow for the influence of that traditional and growing feeling which, beginning in the narrow bewilderment of fetichism, developed into symbolic polytheism, and culminated in such a recognition of the impressiveness of creation, as we have seen in Lucretius, yet there was in such men an element of personal subordination to, and communion with Supreme Power in the form of moral authority, such as cannot be accounted for apart from that spiritual nature which realizes the life of God in the soul of man.

It is one thing to feel that this

world around me is great, surpassing comprehension, bearing everywhere the imperial robe of commanding order; it is quite another thing, or at least a very different aspect of the same spiritual sense, to feel that the Life which pervades the world breathes also in me,—suggesting, directing, and empowering that loyalty of thought and action which makes me consciously a harmonious part of a divine whole. There is nothing in such a distinction inconsistent with the continuity of religious evolution. For these two feelings are essentially one; and were both indistinguishably involved in that earliest movement of the spiritual nature, which resulted in fetichism. But, as ages rolled on, the education of the spiritual nature would make it more susceptible not only to outward impressions, but to inward influences. A man in the mental and spiritual condition of the Kaffir Sekese is on the very borders of prophetic inspiration. And, speaking now only of the outward facts, it is from some such source that all historical religions have arisen. By historical religions I mean those, the origins of which are dated within historical memory, though their records are of course of very various historical value. In this sense Buddhism, Judaism, Islam and Christianity are all historical religions. And they have likewise this also in common, that they are all prophetic religions, in the sense of deriving their first impulse from some one who spoke for God, from a feeling of indwelling inspiration, and therefore with a certain divine authority. It is not necessary for our purpose here to argue the possibility or otherwise of miraculous credentials by which divine authority might be proved. For the authority to which I allude needs no proof. It consists in the power with which a deeper divine consciousness appeals by energetic utterance to the minds of men who have reached a certain stage of spiritual growth. A man like Sakya-muni, feeling the corruptions of the society,

and the powerlessness of the religion, under which he lived, was driven by a resistless impulse to feel after readjustment of those relations of mankind to infinite Power, which he felt to be inadequately represented or grotesquely misrepresented by a perverted religion. The aim might not be presented in this form to his own consciousness. To his mind true felicity, supreme blessedness, or essential truth might be the object of his search. But this is manifestly only another way of describing the right relation of man to infinite Power. Intellectual inquiry after this would be philosophical research; while an endeavor after the practical expression of this would be religion. That the motive of Sackya-muni was from the first a religious impulse, is shown, if we may trust our information, by his actions. His renunciation of splendor and state—his identification of himself with suffering humanity—his retirement into a solitude which was to present in its intensest form the problem of individual life,—all show, not so much philosophical reflection, as an earnest desire to live out the true relation of the one to the All. And the ideas at which he arrived of the essential evil of individual existence, and of the blessedness of Nirvâna, were not so much philosophical conclusions as the feeling out of the soul toward an unlimited loyalty to the Infinite.

In the story of Arabian religion it seems not improbable that we have before our eyes the whole process of development, from fetichism, through symbolic idolatry, to a more or less spiritual faith. The black stone, which from time immemorial has given a special sacredness to the temple of Mecca, seems an undoubted relic of the fetichism of a prehistoric period. There appears to be no way of accounting for its special honors, except by a traditional feeling which dates from a time when the unusual character of the object stirred the first germs of spiritual emotion in some barbaric tribe. Mo-

ammed, however, found his countrymen practicing a somewhat elaborate idolatry, which like all others appears to have been symbolic of the inscrutable powers of nature. But in the cave whither, at the age of forty years, he withdrew for solitary contemplation, he, like Sackya-muni and Socrates, seems to have realized an inward impulse, which predominated over the outward impressions wrought upon his soul by traditional interpretations of man's relation to the Infinite. "He consulted," says Gibbon, "the spirit of fraud or enthusiasm, whose abode is not in the heavens, but in the mind of the prophet."* We have in these words a just distinction perverted by a sneer. No one now will attribute to Mohammed, at least in the outset of his career, any purpose of deliberate fraud. Nor, when we contrast with the distracted and effete interpretations of nature current in his time, that intense unity of infinite Power which he proclaimed, can there be any hesitation in granting that what at least to his own race, was decidedly an onward movement, must have resulted from some special individual realization of that creative energy which is the inspiration of universal growth. The errors and excesses into which he afterwards fell,—the sensual conceptions of immortality, exciting selfishness in its most effeminate forms,—the cruel intolerance appealing to selfishness in its guise of arrogant self-assertion,—do undoubtedly detract from the spiritual fame of Mohammed so much,

* "Roman Empire," vol. vi. p. 222; Smith's edition. "I am ignorant," he says previously (p. 211), "and I am careless of the blind mythology of the barbarians, of the local deities, of the stars, the air, and the earth, of their sex, their titles, their attributes or subordination." How contemptuously incredulous Gibbon would have been, had he been told that the subjects which he despises would become matter of intensest interest to a wiser and more philosophic generation! Surely the passage is now a satire on the arrogance of contempt for any phenomena of human development.

that it is difficult to credit him with any high degree of that divine communion which we may fairly regard as the essence of individual religion. When compared with the pure unselfish earnestness of Sakya-muni's hunger after eternal good, the spiritual ambition of Mohammed seems nothing but a fierce if brilliant fanaticism. I say nothing of any comparison with the heroes of Christian inspiration. The stupendous power of Christ had lifted them to conceptions of the divine life so high that, as Augustine finely says of St. John, such men dwelt apart in loneliness like that of the great mountains, whose loftiness is measured, not by comparison, nor yet by imagination, but by the flood of blessings which they pour down on the little hills and plains below. This immense superiority of the life inspired by Christ has made it difficult for Christian thought to realize, or even to believe in, the continuity of religious evolution. And yet there are so many strong compelling reasons which now bind us to the effort; and the whole conception of man's position in the universe is so irrational and incongruous on any other hypothesis; that we are bound to consider afresh whether the differences between Christianity and other religions are such as necessarily to exclude any generalization involving them all,—a generalization which would make them all alike manifestations of a mysterious and sacred "nisus" in the human soul to attain an ever truer expression of our relation to the Infinite. To those who still maintain, in name at least, the miraculous infallibility of the Christian Scriptures, such a generalization is of course out of the question. In their view there can be no continuous growth of the divine life. For the Almighty has descended into the middle of history with a written explanation of the whole subject, less than which cannot be accepted, and beyond which nothing can be desired. But to those who do not receive the infallibility of

the Bible, the attempt at such a generalization, on the hypothesis of a really divine inspiration variously manifested, has become absolutely necessary. For no modification of that infallibility can be stated, or even conceived, which, while allowing errors in the Bible, should preserve its absolute authority upon any subject whatever. The change may take place at various rates of progress; and in the spiritual history of many individual minds may never be accomplished. But assuredly the surrender of the unconditional infallibility of the Scriptures leads, not logically only, but by practical necessity, to the recognition that the Bible is on all subjects whatever a mixture of truth and error, which both alike find their approximate analogues in other far inferior records of religion. And when we arrive at this position, the refusal to attempt for ourselves, if not for others, any generalization founded on the unity of the religious impulse, must necessarily amount to a sort of spiritual suicide. No reason can be given from such a position for treating Christianity as differing, otherwise than in degree of superiority, from other efforts to give practical expression to our sense of relation to the Infinite. If other great religions which have swayed the spiritual affections of millions, and whose empire would count in a few generations as many devotees as Christianity can reckon in two thousand years, can be accounted for by purely natural, that is molecular causes, it is impossible to show any reason why the mingling of truth and error in Christianity should not be accounted for in the same way. On the other hand, if we insist, as actual spiritual experience compels us to do, on the reality of a divine afflatus breathing through the forms of Christianity, it is impossible to deny some measure of inspiration to the originating impulse, or to the surviving spiritual power, of any religion which has made men feel, and show by unselfish devotion, a

loyalty to the rule of heaven. The question, Has God spoken to men? no longer means, Has he once broken an everlasting silence? but does the race in all its higher progress manifest a consciousness of a veritable divine impulse to which all progress is due?

It is this question which I think may be answered with joyful confidence by a true doctrine of continuity in religious development. It is to illustrate the universal realization of that impulse that I have called attention to the phenomena of fetichism, and to the constantly-expanding spiritual forces which have raised its narrow, almost brutish, sense of amazement and fear into an assurance of inward communion with the inscrutable Power that embraces and sways the world. It is as an instance of this that I have insisted upon the prophetic inspiration of Sakyamuni. And no distortions and perversions, with which individual constitution or outward circumstances affected and perverted the inspiration of Mohammed, can make me hesitate to believe, that when in the cave of Hera there started into his mind the conviction, "there is one God, and it is the mission of my life to proclaim Him" he was in true communion with the Power which makes all things one, and felt a special impulse of divine purpose.

It may be objected indeed that here we can have no illustration of any world-wide evolution; because, as compared with Christianity which had already prevailed for six centuries, Mohammedanism would be a step in retrogression. But the objection would only show a misunderstanding of the doctrine here urged. For the true idea of a continuous and progressive inspiration of mankind does not at all necessarily imply that the resulting development should be equally realized all the world over at the same time. This would be as absurd as it would be to insist that, according to the evolution of species,

successive ages ought to show everywhere similar, or at least, equal advances on the simplicity of primeval monads. The real theory only implies that wherever an advance is made it everywhere passes through equivalent stages, and is maintained by new applications of an original and imperishable force. As applied to the history of religion, at least so far as my idea of it is concerned, this would imply that the line of progress, unless broken by foreign influences, should everywhere pass from fetichism, through an idolatry symbolic of nature-worship, to religions properly prophetic. And perhaps no better example of such a progress could be found than that which seems suggested by the connection of the Caaba, first with the ancient idolatries of Arabia, and then with Mohammedanism. We should not perhaps attribute very much weight to the fact that Mohammed himself was of that princely race to which the guardianship of the sacred stone was specially entrusted. But as in his own person the religious history of Arabia culminated, his genealogical association with the ancient religion gives a special completeness to the outward embodiment of our illustration. No doubt the circumstance of Mohammed's acquaintance with the Judæo-Christian Scriptures detracts somewhat from the complete applicability of his case to the elucidation of our argument. But not altogether; for if Mohammed had no belief in the reality of Biblical inspiration, his adoption of scriptural suggestions sprang entirely from his own inward impulse; while, on the other hand, if he did believe in a special divine mission of Moses and of Christ, his insistence on his own supplementary mission would only be in accordance with a recognition, in some sort, of that continuance of a divine impulse to all generations, on which I am now insisting. Besides, if absolute and unconditional originality were to be made the test

of any real inspiration, no instance of such a thing can ever be found in the whole history of the world.

I maintain therefore that Mohammed may fairly be taken, equally with Sakya-muni, as an illustration of the rise of prophetic religions through that sense of an inward and personal inspiration, which constitutes the third great stage in the history of religious development. The simplicity and spiritual purity of his first doctrines; the devotion which drove him to face social ostracism, persecution, and possible death in the proclamation of those doctrines; the persistent earnestness with which he persevered amidst all discouragement at an age when the end of life looms into view; the impossibility of any human forecast of the strange and lurid splendors which awaited his career; all unite in justifying our conviction, that in Mohammed had become articulate that divine impulse for which his race was ripe; or that a veritable inspiration converted symbolic glimpses of the sacred mysteries of the universe into a loyal devotion to the all-embracing Power which makes it one.

I have not attempted any sketch of the systems inaugurated by these prophetic men whom I have taken as types. For our present purpose, it does not matter in the least what these systems were; if only we can recognize in them an advance from symbolic nature-worship toward an appreciation of the unity and spirituality of sovereign Power. Sakya-muni's disciples, who surrendered luxury and wealth; who showed their impatience of the narrowness of individual life by a course of self-forgetful action or contemplation, which they believed would ultimately merge them in the only true being, non-existence, showed therein that loyalty of soul which is the essence of faith. And Mohammed's earliest followers, who realized in his splendid presence the tokens of a divine mission; who forsook their idols and their kindred for the glory of a higher truth; whose

consciences were refined, whose energies were braced by the dread thought of One Sovereign Ruler of the world, showed also, though under the influence of a very different ideal, the same loyalty of soul. To both alike their new religion was dear, because it seemed more nobly capable than anything in their experience of giving practical expression to their sense of relation to the Infinite.

In dealing, however, though very generally, with the other historical religions mentioned above, it is impossible to avoid considering more closely the nature and the reason of the influence which they wield over our souls. For if Mosaism or Christianity touches the hearts of men only by the communication of opinions supposed to be infallibly correct, it is impossible to bring either under the generalization which is attempted here. Indeed they would both belong far more to divine philosophy than to human religion. It is no part of my purpose here to discuss the authenticity or authoritative value of religious records. It is sufficient to reiterate, what no one can deny, that these are matters on which various opinions are actually held; and which must be decided, in the largest meaning of the words, not by faith, but by sight. I may, however, be permitted to assume the substantial accuracy of the memories which venerate Moses as a leader of prophetic power, who was mighty both in word and in deed, through the confidence he had, and which he communicated to others, that God was with him. To what extent the religious traditions which are now prefixed to the story of his ministry existed in his day, we are quite unable to determine. To the symbolic idolatry of Egypt, however, he seems certainly to have stood in the same relation as Mohammed to that of Arabia. The story of his instruction in all the wisdom of the Egyptians, and perhaps the tradition of Joseph's connection with the priest of On, may be a reminiscence of Hebrew participation in the idolatrous mysteries of Egypt.

As we have said above, absolute unconditional originality can be claimed for no one. The Jewish race is one of such strongly-marked prophetic gifts, that it is extremely probable the germs of that intense spirituality which afterwards characterized them may have existed amongst their no-made ancestors. But the sudden development of that spirituality into a power which broke the sceptre of Pharaoh, and raised a horde of whining slaves into a conquering nation, must apparently have been due to some extraordinary personal characteristics in the great Lawgiver. We need have no hesitation in believing what, if disproved, would only be an illustration removed from history to imagination, that in his lonely banishment among the wilds of Sinai, the paltry emblems of Egyptian worship seemed shriveled up into miserable mummies. And in dread contrast an Eternal Presence blazed in the sky, brooded in the shadows of the hills, and made the weird silence vocal with a voice mightier than the thunder. But it was not nature that spoke to Moses; not at least nature passive, developed, made. He stood there the most glorious thing in nature; and all the powers that went to kindle the sun, or pile the mountains, or rear the palms, or give grace or vigor to bird or beast, united the quintessence of their energies in the body and soul of the man whose contemplations they held enthralled. It was not from without, but, from within, that the great impulse came which made him the herald of a higher religious life. That Egypt had taught him the mystery of existence we may well believe. But it could not give him that which would enable him to feel at one with the Presence he realized amid the solitudes of Sinai. There was no power to grasp the heart; there was no breath at all, in the emblematic paraphernalia by which Egypt hinted at Eternal Being. But here, in temples reared by no human hands, the prophet felt with an intensity for which nothing but divine communion could ac-

count, the Everlasting Life which is at once the center and circumference of all things. Yet no vague impersonality could hold his soul with a grasp at once so imperious and tender as that which now he felt. No veiled Isis, muttering dim words of all that is and can be, could fire the soul with resolves that fructified in loyal action. The Great Spirit, of whom perhaps his wandering forefathers spoke, seemed to find their child again in the desert which had been their home. Why should their descendants serve strangers in a land which was not theirs, and gods, whose meanness mocked the glory of the world? And then while sky, mountain, and desert burned in a silence that seemed oppressed by one stupendous Presence, there came into his heart the words: *I am that I am; thus shalt thou say unto the children of Israel, I AM hath sent me unto you.*"

Some incidents of the succeeding history would seem to cast doubt upon the extent to which the Hebrew Monotheism was developed by the direct influence of Moses. But that is a question with which we have at present little concern. It does at any rate seem to be clear, that, owing to influences which were traced back to Moses, and which were continually revived by fresh prophetic inspiration, the Hebrew race believed themselves to have a special mission in the destinies of the world, and to be sustained in its fulfillment by the protection and guidance of the supreme God, who—as their best teachers assured them,—was spiritual in His nature, inscrutable in His majesty, not to be compared to, or symbolized by, any created thing in heaven or earth. That this special destiny of theirs was merely one of conquest and self-seeking supremacy, is an idea that may find some support in the earlier and more savage memories of the nation, but is quite incongruous with the tone of those higher prophetic voices which proclaimed, that what the priests were to the favored people, the favored people should be to the whole world,

"Ye shall be unto Me," said the divine voice, "a kingdom of priests, and a holy nation." Echoing this, Isaiah declared, "Ye shall be named the priests of the Lord, men shall call you the ministers of our God." And it was a steadfast tradition, dating from time immemorial, that by the seed of Abraham all the families of the earth should be blessed. Side by side with such perceptions of these higher possibilities of the national destiny there was a fierce and arrogant spirit which imparted bitterness to resentment under persecution and which, having its origin in a perverted spiritual pride, totally incomprehensible to western nations, gave philosophic foreigners the impression that the essence of Jewish religion was a hatred of the whole human race. But that there were much nobler influences at work in the development of Mosaic inspiration is abundantly proved, not only by the heavenly music of the greater prophets, but by the undoubted fact of the organic connection between Judaism and Christianity. Certainly, enemies themselves being judges, it must be conceded that never in the history of the world has there been known a spiritual power so sublimely creative as that which was wielded by Christ. But granting this, it must needs be allowed that many post-canonical Jewish teachers showed a spirituality of conception, and an expansiveness of sympathy, which must have done much to prepare a fitting soil for the germination of the higher religion. In fine, whatever else may be accepted or rejected in regard to the Old Testament dispensation one feels that the ancient Jews had a very strong sense of a national and individual relation to unseen and infinite Power. And whether in the minute observances of the Law, or in their appeals to "the sword of the Lord and of Gideon;" whether in their forecast of supreme dominion, or in their yearning after proselytes; whether in their fierce scorn of idolatry or in the pure, sweet breathings of their peerless psalmody;

their whole religion in all its growth was a persistent endeavor, sustained with extraordinary vitality of purpose, after a practical expression of that relation to the Infinite, in which they realized their exalted mission. The faith constituting their spiritual power, was not the belief that this or that had happened in times gone by; even less did it consist in theological opinion, as the non-metaphysical character of all their prophetic writings would show; but it rather consisted in that loyalty of soul to their sense of divine relations and a divine destiny, which drew them to find their highest joy in communion with God.

The one thing that seems most widely to distinguish both Judaism and Christianity from other historical religions, and indeed from all other religions of the world, is the persistent renewal, in forms adapted to succeeding ages, of the divine afflatus to which they owed their birth. In the application of this remark, of course, we must regard the two religions as different stages in one organic growth. Buddhism, notwithstanding the marvelous power of its early enthusiasm, soon fell into a condition, not so much of suspended animation, as of permanent paralysis, from which no revival is conceivable. Mohammedanism, after it had flown with the swiftness of a wind-driven fire round the twintereed framework of a sleepy church, glowed for a while in lurid splendor, and then, as is the manner of exhausted fires, cooled down from the extremities toward the dying source of heat. Outbursts of fanaticism there have been and are; dances of mad devishes, and rabid Wahabeeism; like the tongues of flame that suddenly shoot from unsuspected cores of heat in a consumed ruin; but any genuine renewal, in forms adapted to other times, of the resistless impulse which swept Mohammed to surprising victory, there never has been; and we may fairly regard it as inconceivable. How different was the history of the Mosaic religion! The first impulse

given in the wilds of Sinai was not the kindling of a flame; it was the birth of a living force. And this, as life ever will, renewed itself from age in forms continually modified by the circumstances of the times. The great soldiers of the Israelites were always men instinct with prophetic fire; their greatest kings were those whom a sense of the nearness of God subordinated in heart and soul and will to the fulfillment of a divine mission. The hereditary priesthood fell, of course, under the inevitable doom of effete conventionality. But the priests were more than rivaled by that prophetic race whose genealogy, being spiritual not physical, handed on through a succession of keen susceptible souls the sacred torch once kindled by the breath of God. There seems to us now a pathetic simplicity in the unembarrassed innocence with which the old records tell us how "an angel of the Lord came up from Gilgal to Bochim and said, 'Ye have not obeyed my voice, why have ye done this?'" or how, "when the children of Israel called unto the Lord because of the Midianites" "there came an angel of the Lord and sat under an oak which was in Ophrah" and saluted Gideon with the words, "the Lord is with thee thou mighty man of valor;" or how the spirit of the Lord came mightily upon Samson, enabling him to slay a thousand men with the jaw-bone of an ass. But there is more in such reminiscences than a merely mythopœic imagination. They show rather an imagination animated and directed in all its workings by the sense of an ever-recurrent inspiration from the eternal world. Never, not even in the flat, sad level, which stretches with a bright interlude of Maccabean glory, from the captivity to the Christian era, was the Jewish race wholly unvisited by special inward impulses from the Power that outwardly molds the world. When a corrupt priesthood reduced the old religion to a fraudulent pretense, the spiritual power of Samuel stirred it with

fresh energy and inaugurated a new era. When, under the weak villainy of Ahab, "truth had fallen in the streets and equity could not enter," and when, with the utter dethronement of justice, hope had vanished from the future, Elijah flashed like a thunderbolt across the darkened heaven, and with the shock of his fierce words and deeds light came back once more. In the later days of the monarchy, when it began to be apparent that the political framework of old Jewish life could not long withstand the pressure of mighty empires, slowly crushing upon it like ice-floes on a vessel in the Arctic seas; then arose that nobler race of prophets, of whom Isaiah, Jeremiah and Habakkuk are types; and who proclaimed in the spiritual principles underlying the ancient law, the germs of a future grander than the past. There are psalms of the period of the captivity, or later, recording so simple and pure a sense of divine communion,—songs of Zion, so changeless in the kindling freshness of their yet breathing life, instinct with such immortal skill to touch and heal passionate or despairing souls,—that we may well understand how, dating from such times, they have seemed to many like a portent, not to be explained by anything short of an arrest of nature's laws. Take for instance Psalm cxix., that meditation which with sweet monotony strikes for ever the golden string, deep buried in the heart, a string implying in its strange susceptibilities the reality of a music not of this world, but harmonizing all worlds in one. There is no poetry; there is little rhythm; there is no intellectual insight; there is no comprehensive philosophy, in the gentle life that yearns and pleads through these undying words. But there is not one verse throughout, which does not tell of a man to whom the Infinite Power was a living presence, a whispering voice, a beneficent law, a constant inspiration, the everlasting arms in which he lay, trustful, hopeful, though

often tearful, as a little child. Such are the phenomena that we mark in the growth of the Mosaic religion; a deep enthralling sense of national and personal relation to the Infinite, the practical expression of which relation was modified from age to age by the pressure of recurring impulses of inspiration against the circumstances of the times, but always so as to make spiritual declension merely the retirement preliminary to a higher spring of spiritual attainment. In one word Isaiah, bemoaning the godless weakness of his day, summed up the causes that saved Judaism from the fate of other historical religions, "When the enemy shall come in like a flood, the spirit of the Lord shall lift up a standard against him."

We assume, throughout this exposition, the true divinity of the impulse which inspires in man a sense of his relation to the Infinite, and excites the desire to give practical expression to this consciousness. But on the other hand it ought to be borne in mind that, according to the ideas here advanced, this inspiration does not ensure the accuracy of the expression in which human endeavor results. The impulse however is of God; like every creative energy it is essentially good. And though the mysterious course of human affairs is such that, to our conceptions, this impulse seems to be baffled and perverted at every step of development; yet every movement which is achieved by its victory over the narrowness of creature life is a real advance toward the blessedness and purity of that state of existence, in which, as St. Paul says, "God shall be all in all." It was well that primeval man should be roused out of mere brute self-feeling by his wonder at meteoric stones, or other strange natural objects. It was good that a later race should realize the mysterious Power encompassing all that is, and manifesting itself in every natural form alike. It was better that a strong inward yearning should draw prophetic souls into the con-

sciousness of God, and empower them with a spiritual energy commanding the sympathy of others. But the noblest particular manifestation of this divine impulse in history was the mission of Christ; who bearing with unchallenged fitness the title "Son of Man," showed that the true significance of this title was "Son of God."

I will not enter upon questions of dogmatic theology; the very object of this essay being to exhibit the essence of religion as independent of them all. Our conception of the person of Christ is necessarily dependent, not only upon our favored canons of historical criticism, but also upon our ideas of the nature of God. But whatever may be our notions of criticism or theosophy, the essence of our religion is the fealty with which we bear ourselves in such relations to the Infinite as we have been able to conceive or feel. And it is the power of Christ to exalt, to refine, to intensify our inward sense of these divine relations, which makes him "the chief among ten thousand" ideals that have inspired the loyalty of men. I am well aware that such a description of the mission of Christ will, by thousands of devout hearts, be spurned as inadequate in the extreme. For the eager adoration, which is the just prerogative of that transcendent Name, will allow no comparison between the Sun of Righteousness and the stars whose glimmer is extinguished by His rise. Yet if there was even the feeblest spark of original inspiration in other and inferior prophets, the difference, even though it be like that between a star of the tenth magnitude and the sun, must still be one of degree. Nor for our present purpose can any dogma of Christ's supernatural being affect the question. Whether such a dogma is true or false, it is here entirely irrelevant. For on the hypothesis of its truth, all that can be said is that, at a crisis in the world's history, such a supernatural Being was needed, to crown the develop-

ment of man's divine life by a spiritual power altogether beyond the range of strictly human capacity. While, on the opposite hypothesis, it must be held that the power needed for the work was within the limits of a transcendent consciousness of God. But the view on which I am insisting is not necessarily inconsistent with either hypothesis. For it amounts to this, that—the essence of religion consisting in an endeavor after a practical expression of man's conscious relation to the Infinite—the impulse which begets the endeavor is truly divine, an undeniable form of creative energy; and farther, that this inspiration is to be recognized in the advance from brute stolidity to Fetichism, from Fetichism to symbolic Nature-worship, from Nature-worship to prophetic religions such as Mosaism, and from Mosaism to the higher prophetic religion of Christianity. Now, miraculous powers may, or may not, have intervened at any step in the process. But the decision either way cannot make any difference to the essential significance of religious development. And therefore I hold it no part of my duty here to discuss the theological dogmas which define supernatural mysteries. Or if it be urged that what the Church generally attributes to Christ is not so much a mission of fresh inspiration, but rather a "finished work" of atonement which has completely altered the relations of a sinful race to the Infinite One; I answer that even according to this view, inasmuch as salvation by Christ was admittedly possible before his advent, the work must be regarded as underlying history, and as in a very true sense "finished before the foundation of the world." Thus the course of development which I have endeavored to trace might be regarded as resting upon, and indeed carrying out, with the gradual advance characteristic of the progress of creation, the underlying, dateless, and transcendental atonement which neutralizes sin. I do not affect to be

here describing my own views; and as little do I deny that there are very real truths involved in such opinions. But it is totally alien from the purpose of the present essay to make any attempt at the elimination of such hypothetical truths from possible errors. The object here is to show that, excluding only the idea of any existing infallible standard of right opinions to be adopted under pain of damnation, the essential nature of religion may be so conceived, as at once to preserve its divine significance and to include every form of opinion under which loyalty to a higher life has ever been manifested.

If, in the remote beginnings of religious life, the expansiveness of our definition is severely tried by the repulsive corruptions of Fetichism, it may appear to suffer even a greater strain in the attempt to apply it to those glorious embodiments of faith which have illustrated the Christian centuries. And especially the sacred passion of evangelic zeal, which has always marked the brightest ages of the Church's work, may seem at once too vigorously human, and too transcendently divine, to be explained by any tendencies that can be described in words so abstract, or in themselves so cold as "an endeavor after a practical expression of our conscious relation to the Infinite."

Still, bearing in mind our assumption of a really divine impulse animating and pervading spiritual progress, it can be no dishonor to Christianity, if we see in its beneficent energies the grandest outcome of the same tendencies which, excited by the wonder of strange forms, awoke in primeval man the first glimmering sense of infinite mystery. For the hearts of all most devout Christians have been stirred, beyond the limits of selfishness or fear, by a strong confidence that all the struggles of the world and all the dark dealings of Providence are controlled or directed by the boundless love declared to mankind in Jesus Christ. "All things are of God," said St. Paul,

“who hath reconciled us to Himself by Jesus Christ, and hath given to us the ministry of reconciliation; to wit, that God was in Christ reconciling the world unto Himself, not imputing their trespasses unto them; and hath committed unto us the word of reconciliation. Now, then, we are ambassadors for Christ, as though God did beseech you by us; we pray you in Christ’s stead, be ye reconciled to God.” “Herein is love,” said St. John, “not that we loved God, but that He loved us, and gave His Son to be the propitiation for our sins.” Such passages give the key-note of the gospel; and there can be little dispute but that, in forever reiterating this, the “evangelicals” and their spiritual forefathers have kept closest to the real source of Christianity’s regenerative power. Earnestness of emotion, by concentrating attention too much on single points, has too often contracted the views of the devoutest men. And this contraction of view has frequently and inevitably resulted in the distortion of the favorite doctrines which have been thus isolated; so that at recurring periods, such names as “Paulician,” “Pietist,” and “Methodist,” have become synonyms for morbid superstition, and objects of undeserved reproach. But still it stands good, that while other schools of religious thought have been molding the intellectual system, or clipping the extravagant formulas, or adorning the worship of the Church, the evangelicals and their predecessors have, often almost alone, kept the sacred fire burning on the altar. That the fervor, which by a true apostolic succession they have transmitted from age to age, is inseparable from dogmas for ever changing form in their hands, I hold to be an illusion, eventually to be dissipated by the conjunction of an equally fervent faith with a wider knowledge. But no natural impatience of a blind conservatism, which threatens the survival of religion in any form, ought to obscure the patent fact, that the

life of Christianity has always been most vigorously manifested by the fervor of the evangelic spirit. The intense pathos of St. Paul’s pleading, the cloudless contemplations of St. John in his divinest moods, the bewildered eloquence of the Letter to Diognetus, which trembles and loses self-control under the weight of glory that oppresses the writer in the love of God, the most jubilant music of Chrysostom’s golden tones, the weightiest utterances of Augustine’s divine consciousness, the sweet mysticism of Tauler, the indignant protests of Luther, the imaginative joy of the author of “Grace Abounding,” the eager pointedness of Wesley’s zeal, and all the undying words and works of the noble army of Christ’s witnesses—have been constantly inspired, energized, and brightened by the one unailing source of mystic wonder, that “God so loved the world.” It was the feeling that in Christ the true Father’s heart came out, it was the clearness, the purity, the simplicity to homeliness, with which the unsearchable mystery of God’s nature seemed to take form in Christ, that so fired the souls of the noblest preachers, and wrought with such unailing effect on the hearts of mankind. But this sense of Divine Love is surely an intense and beautiful form of our conscious relation to the Infinite; and the practical expression of this consciousness, in a life of grateful devotion, has produced the highest types of character that the Christian world has seen.

Or, if it be insisted that the so-called forensic form of the doctrine of the atonement, often very repulsively presented, has had quite as much to do with spiritual excitement under “gospel preaching,” as any exhibition of divine love; still, even this corruption of the original simplicity of the Gospel appealed to the desire to realize, beyond and above all moral standards, a sacred and everlasting sanction which alone makes them venerable. How often have earnest evangelical preachers,

with little regard, as usual, to the real meaning of texts, quoted with emphasis the words, that the Lord "will magnify the law and make it honorable." This prophecy they have seen fulfilled in the sacrifice of Christ. They have pointed to "the man Christ Jesus" suffering in his very sympathies both with God and man, as a manifestation of the dread burden which the sin of others is to a holy nature. And some of the more mystical of such preachers have pointed to the cross of Christ, as a figure of God's patient endurance beneath the injustice and wrong which human rebellion had done to His mercy and goodness. With such a form of doctrine there can be no difficulty. Here is man's consciousness of relationship to the Infinite, taking form in a beautiful and touching expression of the divine grounds of righteousness. And even where intellectual confusion, coarseness of feeling, and false analogy have combined to form a conception of that sacrifice more worthy of Fetichism than of Christianity; still, in the representation of guilt condemned and law secured by a supernatural divine economy, there has been manifest a craving desire to see the authoritative claims of religion and morality based on our relation to supreme and unswerving justice.

By this brief illustrative review I have endeavored to show that there underlies all religions, whether in our opinion they are true or false, the same essential idea. Each is an endeavor after a practical expression of man's conscious relation to the Infinite. This consciousness, as we have seen in the essay on the Philosophy of Ignorance, is necessarily given when man comes to such a stage of maturity that the fragmentariness of his creature life is contrasted with the immeasurable All which is the "complement of the Ego." Like every other form of human consciousness it in all probability arose through a long course of slow development. And even in its utmost

maturity it does not constitute religion. The essence of religion is the impulse to interpret that relationship as involving humility, submission, aspiration, and loyalty to the recognized laws of a Power that is altogether beyond self-will. That impulse I recognize as truly divine, the vital essence of every form of sacred inspiration. Again, by the description "truly divine," I mean that it is a real and undying element in the inscrutable power which is the efficient cause of evolution. It is no misinterpretation or corruption arising from a misunderstanding of the universe by self-conceit. It is no mere negation of a comprehensive and adequate conception of the universe. It is a normal and positive manifestation inwardly, to our consciousness, of the Power in whom all things consist, and of whose infinite modes the changes, which constitute evolution, are the exhibition, in phenomenal succession. If it be asked how I have the confidence to affirm this, I appeal to no authoritative documents, and to no miraculous attestations, save those which are written in the heart, and which guarantee, by a mysterious but all-sufficient authority, the principles lying at the basis of all practicable life. As we obey the predisposition to find in the testimony of the senses an external world, although its externality cannot be proved; as we confidently act on the predisposition to realize in cause and effect more than mere succession and to augur the future from the past, without the slightest justification by syllogism; so a genuine loyalty of soul teaches obedience to the predisposition that inclines us to recognize in an impulse pervading all the progress of mankind, and animating our own noblest life, the veritable, inward, and spiritual working of everlasting Power. This impulse drives us to find some practical expression, either spiritual in religious virtues, or intellectual in religious philosophy, or symbolic in religious worship, of the indefeasible consciousness of re-

lation to God. And in such an endeavor we find the essential nature of religion.

The question, however, here arises, whether on the views thus advocated the truth or falsehood of religious teaching is of any importance at all; and especially in what sense, if any, Christianity may be regarded as a religion of saving truth. How, it may be asked, is it possible that the most impressive doctrines of evangelical religion should affect the heart, apart from a strong and even stern conviction of their historical revelation and binding authority? In answer to such questions we must try to determine what it is in the most impressive doctrines which has given them their special power. If the vital essence of their energy consists in any outward event, or in the precise form of any intellectual dogma; then the intellectual insinuation would be unanswerable, that religion must stand or fall with the balance of historical evidence, or of ecclesiastical authority. But such a thing is simply inconceivable. No historical event can possibly affect the heart, save in so far as it conveys or strikingly suggests spiritual principles. The dread and glorious consummation of Calvary itself could have no lesson for the heart, and no regeneration for the soul, except when regarded as embodying and enforcing the horror of sin, the regenerative might of self-sacrifice, and the endurance of divine patience. When, therefore, we would estimate the truth or falsehood of religious teaching, it is not so much its testimony to outward facts with which we have to do, but rather the principles which it infers. It may, or may not, be true that Christ had the power of opening the eyes of the blind; but the only religious element in the question is the use which is made of such miracles to instruct the modern Church. If, for instance, the lesson be drawn that an intense consciousness of God gives the power of illumining blind souls with the perception of a divine significance such as they

had never hitherto found in life, the instruction remains true, whatever may be the character of the events that suggested it. If it should be rejoined that upon the reality of Christ's miracles must depend the belief in his supernatural being, the answer is plain; that this supernatural being could not possibly be of any spiritual advantage to the world, save in so far as it conveyed or suggested spiritual influence. For instance, if the lesson be that the supernatural being of Christ shows the love of God to men in sending one so great to be their Savior, the stimulating power here lies, not in the theological dogma, but in the thought that is suggested. Now, any thought suggested concerning the Infinite God cannot be dependent for its essential truth on this or that event which brings it home to men. And it is at least conceivable, that a larger knowledge of the universe, and a more intense realization of present inspiration from on high might take up, and maintain in all its fullness, that sense of Divine Love, which once needed a supernatural vision to excite it. Of course the fact of God's "unspeakable gift" to men, however it may be interpreted, remains an indestructible element, or rather vital centre, in any rational conception of history. But so far as religion is a present thing, its emotions and its energies ought to be their own witness, apart from any historical criticism of the modes in which they were suggested. In effect, what we ought to mean by the truth or falsehood of Christianity is not the reality or otherwise of any events which are associated with its rise; but rather the adequacy of the ideas it gives, of the feelings it inspires, and of the life it teaches, to give expression in the present day to our conscious relation to God. These remarks are not to be interpreted as necessarily involving any opinion one way or the other, on special, historical, or theological questions. Not that I would hesitate to give my own opinions were they relevant. But the essence of my position

here is that they are not relevant. With the single exception, which we are compelled to make, of the opinion that there is any infallible standard, binding to intellectual obedience on pain of perdition, the most various and opposite views of Christian history may be entertained by those who agree in the idea here given of the essential nature of religion. Thus it is quite possible that a man, while acknowledging religious life to be a present energy of the soul, roused not by historical memory, but by the spiritual suggestions associated therewith, may yet be firmly convinced that the present inspiration never could have existed apart from a mysterious divine Incarnation and a supernatural ministry. He therefore asserts and maintains the all but literal accuracy of the New Testament narratives; while at the same time he owns that if the result, with a view to which miraculous deeds were wrought, are actually attained in the soul of his friend, it matters but little that the opinions of this latter concerning the events in question are directly opposed to his own. Such a position is at least perfectly intelligible and consistent. For it is not only conceivable,—it is an actual fact, that persistent spiritual influences have had their origin in events, the memory of which, owing to the absence of adequate records, has afterwards become hopelessly obscured. And if, at any crisis in history, miraculous attestations of supernatural power were necessary for the next step in the development of spiritual life, it is not at all an impossible supposition, that, while the spiritual influence flowed on like an unfailling river, the historical source might become clouded with obscurity. In such a case, opposite opinions on the historical question might well be possible to minds equally candid, and equally appreciative of the divine life that is the substantial result. This is a view which is indeed not often, if ever, actually avowed by those who magnify the import of the supernatural ele-

ments in Christianity; but it is nevertheless practically adopted by all who, while holding firmly to their own orthodox opinions, hesitate to prophesy the perdition of a sincere and upright opponent. On the other hand, it is equally possible that inability to adopt the ordinary theory of Christian origins may be associated with all the spiritual affections which alone give to those historical opinions significance and value; with the spirit of reverence and aspiration; with brave faith in Divine Love; with the consciousness of divine communion. It is true that this position likewise is too uncommon. The vehement insistence of religious people on the inseparable connection between the letter and the spirit, with their incessant denunciations, often loud and bitter, of any free handling supposed to threaten the foundations, have reacted upon all free thinkers so as to create a prejudice against the spiritual principles and devout emotions thus represented as absolutely inseparable from irrational bigotry. But when the present time of conflict shall have passed, and when a generation more familiar with scientific and critical results is enabled more calmly to consider the whole question, the deep spiritual needs of man will again assert their claims,—the keen force of aspiration after God will be revived; and whatever may be the view ultimately taken as to the historical character of Christian origins, the ideal, which as a matter of fact has been engendered, of the Divine Humanity, and of the kingdom of God on earth, will again be cherished as the precious heir-loom of a mysterious but creative age. If a man does but feel that God is in him and with him now; if he knows by experience that prayer, as an act of divine communion, opens an unfailling fountain of refreshment, solace, and strength; if that larger and blessed life which is forever pressing from the realms of the infinite into his narrow soul, appears always in the form of the grand Being who made the cross a throne; what does

it matter that the audible voice on Sinai melts into the echoes of earnest human thoughts? What is it to him that the fire which answered Elijah's prayer has become the mythic symbol of the fire forever burning on the altar of his heart? Or even if the assertion of a unique and inconceivable miracle, embodied in the person of Christ, should appear to be the expression of emotions that struggled for utterance, rather than the record of historic fact, he has, in the form assumed by the divine Spirit in all inward communion, the true reality underlying the promise: "Lo, I am with you always, even unto the end of the world." The truth of religion must be spiritual; must concern the adequacy of its expression of our conscious relation to the Infinite. And whatever part historical events may have played in making a more adequate expression possible, the power of the higher spiritual consciousness awakened ought not to be, and ultimately cannot be, dependent on the opinions held about the questions of history involved. From another side the objection might be urged, that the views of religion here suggested make it nothing more than a kind of mystic morality. And in as far as the foundations of morality must ultimately be found, not the utilitarianism, which can at best give only the *standard*; but in that loyal subordination to Infinite Power, which alone suggests an adequate *sanction*; there would be some truth in the assertion.

But, instead of being an objection, it would rather amount to a confirmation of the theory advanced. For every one who believes in the necessity of religion at all, must allow that while different in its exercises and in its ultimate outlook, morality is in the last result intimately entwined with the very roots of religion. Still, for all practical purposes, morality and religion represent very different conceptions. For morality deals with our relations to mankind or to other living things, as, equally with ourselves, fragmentary manifestations of universal

Power; and by the force of traditional custom we may observe certain rules for our conduct in such relations, without ever raising the question in our own minds as to the sanction on which all such rules must ultimately rest. But when once that question is raised, it is impossible to give any permanently satisfactory answer without an appeal to religion. For as morality deals with our relations to other creature life, religion rests in our sense of that universal and eternal Life of which we ourselves and all others are fragmentary manifestations. As a practical expression of this consciousness, religion demands the subordination of self, not so much to the particular interests of this or that individual, but rather to what we call the plan or purpose which is manifested to us in evolution, and interpreted by an irrepensible predisposition as the energy of an eternal Life. Here, and here alone, is an adequate sanction for the "ought" which pervades all particular rules of morality. To tell a man that self-sacrifice is glorious or beautiful may be a very pretty sentiment; yet it affords no strong ground for command. But any emotional recognition of the truth that he lives, moves, and has his being in an Infinite Life, no one of whose manifestations exists for its own particular self, but each for all, must bring with it the feeling of loyal obligation underlying all devotion to duty. The view of religion therefore as an endeavor after an adequate expression of our conscious relation to the Infinite would seem to explain both the original unity and the practical divergence of morality and religion. Religion gives the sense of rightful subordination to the divine reign manifest alike in universal order, and in the inward consciousness of creative and inspiring Life. But this consciousness cannot of itself give any distinct notion of the manner in which that subordination should be shown in relation to other creatures. For this latter purpose we need principles and rules elaborated in the course of experience; and

which, becoming matters of custom or habit, are often obeyed without any reference to their original sanction. Thus morality becomes separated, in conception at least, from religion; a dangerous course, which can never long be continued with safety. On the other hand the contemplative mind, dwelling upon its conscious relation to infinite Power, loves to find utterance for its emotions in spiritual reverie or acts of worship, which too often receive no practical interpretation in daily life. Thus religion becomes separated from morality; a course, if possible, more dangerous than the other. But a true idea of religion, while making morality independent of any alleged infallible laws written and graven in stone, inspires it at the same time with a power of growth in accordance with man's increased knowledge of the laws of the universe. And farther, such an idea of religion, by pointing to a sanction of morality deeply seated in the constitution of human nature, lessens the temptation to sever even in thought two beneficent and ennobling influences, never to be separated one from another without a speedy loss of vital power.

V. RELIGIOUS DOGMA.—THE FUTURE OF RELIGION.

FOR the completion of the subject it now only remains, first to show the relation of dogma and of faith to the ideas here propounded; and then to make some suggestions as to the future of religion when such ideas begin to be generally adopted. Dogma, meaning literally that which seems good to, or has been decreed by, a sufficient authority, is ecclesiastically applied to those formal expressions of opinion which have been approved either by the Catholic Church, or by its divergent sects. Such, for instance, is the opinion concerning the incarnation embodied in the Athanasian Creed, or in "The Westmin-

ster Confession of Faith." Such also is the doctrine of Atonement contained in the Second Article, which describes the Sacrifice of Christ as intended to "reconcile His Father to us." These instances are sufficient to illustrate, what indeed no one will dispute, that religious dogma means a formal and to a certain extent authoritative expression of opinion on some point of man's relation to the Infinite. Dogma tells us that God and man are reconciled in Christ. Various dogmas give inconsistent explanations as to the manner in which this was effected. Dogma offers a decided opinion as to the personal being and ontological essence of that inspiring Power which, as a matter of fact, is realized in all the highest moments of individual life or of history. Thus, dogma belongs to philosophy or metaphysics rather than to religion properly so called. It is an *intellectual* explanation of that consciousness which finds *practical* expression in religious life. But since, as we have seen, the very essence of that consciousness lies in a sense of relation to the Infinite, which is in its true being unknowable, and therefore beyond all power of expression, dogma must always be utterly inadequate as an explanation of the religious life. It does not follow at all that religion is impossible; but only that dogma, whatever be its uses, should never be confounded with it. An endeavor after a *practical* expression of our conscious relation to the Infinite produces emotions, aspirations, loyalty of soul and deeds of sacrifice, the very virtue of which consists in a feeling of their utter inadequacy to realize "the glory that excelleth."

There is no attempt here to define that which is illimitable, or to push the arrogance of thought beyond the bounds of the knowable. There is only the inextinguishable faith, that true life is a gradual awakening toward the realization of a goodness that outstretches all the yearning of human love, and of a total perfectness

that is always beyond the horizon of contemplation. Hence true religion is innocent of fanatic confidence, and is guiltless of the impiety which would set dogmatic bounds to Infinite Being. On the other hand dogma, being an effort to give intellectual expression to some phase of the Infinite, so as apparently to explain and account for particular religious affections, may for a while give intensity to those affections by a seeming definition of their object. But after a time, by putting a ban upon their restless yearning after an ever-expanding glory, it uniformly tends to diminish their vitality, or to pervert their direction. That dogma has its uses it would be absurd to deny. But the experience of many centuries teaches us that it is at the best an imperfect expression of man's ever-growing consciousness of God. And the conditions needed for its rightful use are, first of all, a deep feeling of its tentative imperfection, and next, the courageous freedom of thought, which makes dogma to grow out of religious life, rather than religious life out of dogma. In fine, if the essential nature of religion is the practical activity of our conscious relation to the Infinite, dogma is the forever imperfect form under which that relationship is intellectually conceived. How far then the ancient dogmas of the Church may need remodeling before they are fitted to express the religious life of the present age, I shall not attempt here to decide in detail. But no one, except those who cling to the now impossible dogma of infallibility, will for a moment deny that the stupendous enlargement of man's ideas of the physical universe must inevitably require some corresponding expansion in his notions of that Infinite Power, whose phenomenal glory dazzles his mind and entralls his heart.

No error has been more fatal to the simplicity and spirituality of religion, than the inveterate confusion of thought, which has to so large an extent identified *Faith* with *Opinion*.

It was this confusion that generated the fierce, intolerant spirit too often exhibited in the controversial writings of even the noblest among the Fathers of the Church. It was this which incited Christians in their prosperity to take up, and wield with even yet more pitiless vigor, the weapons of persecution dropped from the paralyzed grasp of their heathen opponents. It was this which made the work of the inquisitor a sacred office, and commissioned him to save the souls of the many by visiting with horrible tortures the mental independence of the few. It is this which has retarded the progress of inquiry, which has set a ban on science, and for long centuries has committed the keys of knowledge to a stolidly self-sufficient priesthood. It is this same confusion which, even at the present day, engenders all the inconsistencies, the hollow professions of candor on the lips, masking a slavish terror in the soul, which too often characterize the attitude of popular religion in its bearing toward science. It is impossible to deny that the innocent source of this confusion lies in the New Testament itself. The apostolic writers, consumed with noble zeal for the swift achievement of great moral aims, could not be expected to pause for metaphysical distinctions. And even had they been willing to do so, their employment of an alien language, to embody ideas and feelings which had ripened under Hebrew forms, threw unusual difficulties in their way. A Hebrew root, which, though capable of intellectual applications, lends itself far more easily to moral associations, was translated by various derivatives of a Greek root, which, though susceptible to indirect moral suggestions, was essentially intellectual in its central significance.*

* אמן according to Gesenius (Thesaurus etc.) means originally and properly "fulcivit, sustentavit; hinc אמתה columna etc." Hence in its intransitive form it is equivalent to "firmus, inconcussus fuit; talisque quo tuto aliquis inniti possit; metaph. fidus fuit;" Under the Hiphil form we get with appropri-

The first notion of the Hebrew root, according to Gesenius, is that of firm support, and this leads naturally to the idea of trustiness, steadfastness, loyalty. Or in other forms it is applied to the recognition of that character in others. Thus when the Psalmist laments that "the *faithful* fail from among the children of men," or expresses his confidence that "the Lord preserveth the *faithful*," the epithet he uses suggests no adherence to any opinions,—orthodox or heterodox—but, as indeed the English word most accurately indicates, that trustworthiness or loyalty of soul, from which we may confidently expect integrity and uprightness of dealing. So also when the prophet Habakkuk declares that "the just shall live by his faith," he speaks not of any opinion, but of that steadfast continuity of moral purpose which waits in humble acquiescence upon the purposes of God. On the other hand, when it is said of Abraham that "he believed in the Lord, and He counted it to him for righteousness," the derivative form here used signified that Abraham recognized the faithfulness of God, and confidently reckoned on the fulfillment of His promise. Here again, although it may justly be said that there is at least an implied opinion about the being of God, it is not the opinion, but the moral element of steadfast loyalty to the nature of God, which is represented as winning the divine approval. At any rate, this is, as we shall presently see, St. Paul's interpretation of the passage. Of course the same Hebrew root is applied also to describe a confident persuasion which may be purely intellectual. But it is obvious, from these illustrations, that the first and most

natural suggestion of its originally physical significance is one, not of intellectual opinions, but of moral affections.

Now, when we turn to the Greek root* and its derivatives, the order and connection of ideas seem to be a little different. Here the first idea, so far at least as Greek usage is concerned, is that of persuasion by "talking over;" and this is most naturally associated with the enforcement of opinion by argument. But a man who is really persuaded, has confidence, and is steadfast in his purpose. Hence a derivative verb expresses belief, and a derivative noun and adjective faithfulness. This coincidence, of a general similarity of meaning with a divergent suggestiveness, goes far to explain the use, which is made in the New Testament, of the nearest equivalents that could be found for the Hebrew notion of faith. For while it can be distinctly shown that the element which, in the view of St. Paul, and perhaps of the Evangelists, gave all its spiritual value to faith, is a moral affection; it is undeniable that this moral affection was treated as practically inseparable from the adoption of certain religious opinions. The "locus classicus" on this subject is that passage in the Epistle to the Romans, where St. Paul describes the faith of Abraham. "He staggered not at the promise of God through unbelief; but was strong in faith, giving glory to God; and being fully persuaded that what He had

ate quotations 1. *innixus est rei*, 2. *pro fido et tuto habuit, fidem habuit alicui, confisus est*, 3. *credidit*.

In accordance with this view of the root, we get under the noun *אֱמוּנָה*, which is the Old Testament word for faith, 1. *firmitas*, 2. *securitas*, 3. *fides*, *qua quis promissa præstat et exsequitur*. This is sufficient to sustain the remarks made in the text.

* Of course roots, properly so-called, do not lie on the surface in Greek, as they do, at least conventionally, in Hebrew. But, taking *πειθω* as the primary verb with which *πίστις*, *πιστεύω*, etc., are connected as secondary formation, we find in Liddell and Scott, that the former is interpreted as meaning "to prevail upon, win over by any fair means, especially by words, to talk over, to persuade." In the passive, of course, the word means to be persuaded by a person, to yield to him. Thus the original force is clearly intellectual. *πιστεύω*, and still more *πίστις*, has more of moral significance, and indeed in the latter it is predominant almost to the extent of exclusiveness.

promised He was able to perform. And therefore it was imputed to him for righteousness." (Romans iv. 18-22.)

It is evident that here the Apostle is endeavoring to account for the apparent anomaly of a faith reckoned as righteousness, by describing the former as an essentially moral affection, —the root of all other virtues. Abraham was firm and fearless because of his loyalty to God: but this quality is the very life and soul of righteousness. Nay, so distinctly is faith a moral attribute in the view of this Apostle, that he does not hesitate to ascribe it to the Most High. "What if some did not believe?" he asks; "shall their unbelief make the faith of God of none effect?" (Romans iii. 3.) Now "the faith of God" can here be nothing else than divine loyalty to the ancient covenant; and into such a conception, of course, no element of opinion can intrude. So, too, when St. Paul describes the fruit of the Spirit as "love, joy, peace, long-suffering, gentleness, goodness, faith, meekness, temperance" (Galatians v. 22), it seems impossible to doubt that, in his idea, faith must have been as purely moral an affection as any of those with which it is associated. A similar reflection occurs when we read in the Gospels how Christ rebuked those who paid "tithe of mint, and anise, and cummin, but omitted the weightier matters of the law,—judgment, mercy and faith." (Matthew xxiii. 23.) And when the Savior, in foresight of Peter's temptation to treachery, says to him "I have prayed for thee that thy faith fail not" (Luke xxii. 32), we feel that the word can have little if any theological content, and must be taken as equivalent to faithfulness, or loyalty of soul.

It is however undeniable that the more intellectual idea of faith, suggested by Greek terms, did likewise pervade the teaching of St. Paul, and doubtless of most, if not of all the primitive preachers. The references made to the fate of those to whom "the gospel was hid," (2 Corinthians iv. 3) or to whom the Apostle was "a

savior of death unto death," (2 Corinthians ii. 16) make it difficult for us to imagine that St. Paul could have hoped for the salvation of any heathen hearers who, however sincerely, rejected the opinions which he taught about the mission of Christ to the world. Still less can we suppose that St. John would have allowed the innocence of any, however otherwise virtuous, who refused to adopt the belief that Jesus Christ was the Son of God, and had come in ordinary human flesh (1 John, ii. 22). But yet there is sufficient evidence in such passages as those above quoted, and indeed in the whole tone of the New Testament, that, whatever might be the inseparable associations of the word, the vital element, the nucleus of all regenerative power in the primitive Christian idea of faith, was not any opinion however sacred; but a moral affection, which we best describe as loyalty of soul. And indeed, St. James' (Ep. of James ii. 14) impatience of the associations which had grown up around the Greek equivalent for the Hebrew description of faithful obedience, would seem to be a curious confirmation of the views here suggested. "The faith of our Lord Jesus Christ" was to this writer an equivalent expression for obedience to "the perfect law of liberty." But when he found that there were those who expected salvation because their monotheistic opinions contrasted favorably with the idolatrous systems of the heathen, he could not withhold the scathing rebuke,—"Thou believest there is one God; thou doest well. *The devils also believe, and tremble.*" (Chapter ii. 19.)

We shall not be far wrong, then, if we assert that the essential significance of primitive Christian faith was a loyalty of soul to that ideal of humanity—or, better still, to that expression of the relations of God and man, which was set forth in Jesus Christ. But farther, as St. Paul attributed the glory of Abraham to his faith, and as he seems to have conceived of unilluminated heathen who

were "a law unto themselves," we may fairly generalize the New Testament idea of faith, so far as to consider it definable, as an inward loyalty to the best ideal known. And if so, the relation of faith to the essential nature of religion is clear. For an endeavor after a practical expression of our conscious relation to the Infinite is naturally shown, first in the courage which obeys predispositions, whose authority cannot be proved by sight; and next in outward obedience to the ideals which such predispositions recognize as approximations to infinite goodness. When Saul of Tarsus "kicked against the pricks," he was resisting predispositions implanted and sustained by the Spirit of God, and which had been roused to an agony of suppressed desire by the reflection of Christ's glory beaming from Stephen's heroic face. He began to feel, but would not for a while acknowledge, that the crucified Jesus was a diviner ideal than he had ever known. Prejudice, sectarian pride, social ambition, all fought against the confession; and so long as he withheld it he was faithless, through disloyalty of soul. But the vision and the voice bore down his stubborn will, and the words of meek submission, "Lord, what wilt thou have me to do?" were the beginning of the obedience of faith.

In this view faith, while equally sincere, may be capable of a thousand varieties, according to the circumstances, opportunities, and mental or spiritual capacities of individual men. And as it is not opinion that saves, but the sacred loyalty which is only another word for reconciliation to God, we should be prepared to recognize "like precious faith" in every unselfish surrender of life to the sway of a higher law, however it may be revealed. "It is of sin that we do not love that which is best."* In those words lies the whole doctrine of faith. For "what is best"

is ever the infinite perfection of God, breaking upon us in a myriad phases, all having their special attraction for individual affinities. Or if there be, as undoubtedly there are, some broad gleams of the Supreme Goodness such as draw all eyes away from lesser lights; these great outshinings of the divine glory are themselves refracted into "broken lights" which have their sects and their day. Their separate adorers dispute and wrangle, each mistaking a part for the whole; while, if they did but know it, all alike possess a faith that might "work by love." For as it must be held that all rules of morality are finally embraced under one ultimate sanction, so the subjective root of every variety of human obedience is the one susceptibility, which feels the charm and the awe of that sanction under all particular forms; and this susceptibility is only another word for faith.

Our conclusion then is, that much of the distracting anxiety, arising at the present day from unsettlement of religious opinion, is caused by an insufficient idea of what religion is in its own essential nature. Whereas, when once that essential nature is realized, it is felt to be indestructible. For it is distinctive of man, that in his thoughts and in his emotions he must ever feel after the unity and totality of being. In vain Materialism fixes its microscope, and invites us to see in cells or molecular atoms the ultimate reality of existence. For the wondering mind sees in them only depth beyond depth of an unfathomable mystery. In vain Positivism denies all recognition of aught but what can be analyzed, or measured, or weighed. The tendency to see beyond all moral laws an eternal sanction, and to find beneath the vision of the world an all-comprehensive Life, is as irrepressible, and surely as true to the significance of the universe, as the craving of the eye for color, or of the ear for beautiful sounds. It may be feared indeed, by those who think timidly of the future, that the break-up of old forms, for

* Boethius, quoted in the *Theologia Germanica*.

which no precisely equivalent substitute can be found, must inevitably be followed by the weakness of conviction, so constantly associated with vagueness of definition. But such gloomy prophets forget, that much of the distinctness which they attribute to their own religious forms, consists far more in familiarity of language than in definiteness of thought. Do they dare to frame to themselves any semblance of the transcendent Majesty they worship? Do they know what they mean when they speak, for instance, of guarding against "dividing the substance or confounding the persons" of Deity? Does any effort of imagination enable them to make real to themselves the enshrining of a distinct Divine Person in the babe of Bethlehem? The words which propound the religious dogmas referred to, are familiar, and confidently used, giving a false impression of an intellectual distinctness which has no real existence. It is long habit; it is the reception, through well-worn channels, of the inspiring emotions that come from a sense of our nearness to God; this, and no distinctness of conception about supernatural being it is, which makes old forms so beau-

tiful and dear. But change of form, though it may sometimes disturb us, by revealing the vagueness which it by no means creates, does at the same time, by the very shock it gives, arouse us to a feeling of reality far deeper than we had before. It is even conceivable, that the cessation of reliance on authoritative forms may compel us to feel out for ourselves toward the Divine Life in which we live and move. And no devout soul can well regret the substantial conclusion of the whole matter, which would seem to be, that God never was more vividly manifest to any generation of our fathers than He is to us. Strange sights they might have seen; but never to them was there unfolded the illimitable vastness of the heavens, or the deeper mystery of organic life. They saw, as we may verily believe, in strange unaccountable vision, the beauty and the power of the risen Christ; but upon our eyes, in a new humanity that rises from the grave of the past, God Himself dawns, if not in such mysterious portents, yet with a wide-shining and self-evident splendor, which gathers up the whole progress of revelation.

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ILLUSIONS OF THE SENSES AND OTHER ESSAYS

By RICHARD A. PROCTOR

ILLUSIONS OF THE SENSES.

PROFESSOR LE CONTE of the California University has recently published in the *North American Review* an interesting paper on the Evidence of the Senses, in which he shows that on the one hand the senses often afford most incorrect information while on the other the powers of such scientific instruments as give exact information would be utterly unsuitable substitutes for our less exact senses. Sight tells us that an object is flat when it is round, touch that an object is double when it is single, hearing that sounds come from close by when they really reach us from a great distance; but on the other hand to have eyes with telescopic power, or fingers as sensitive as a chemist's balance, or ears with the sound-gathering qualities of the microphone, would unfit us for the kind of life we have to lead upon this work-a-day world of ours.

I propose now to discuss the question dealt with by Le Conte, with special reference to the liability of our senses to various forms of error. Taste and smell need not here occupy our attention. They are less used than the other senses in scientific research; and so far as the purposes to which they are chiefly directed are concerned they are in the main trust-

worthy. They may deceive us by presenting as pleasant what is really deleterious, but once experience has determined the qualities and effects of substances having such and such taste or odor, we are not often deceived in identifying those substances thereafter.

The sense of touch is commonly understood as including the sense of heat-effects. But here, as Reid long since pointed out, our division of the senses is unsound. Undoubtedly the sense of touch is entirely distinct from the sense of heat,—though we may be said to *feel* in both cases. The error probably arose from the circumstance that the same organs seem employed in noting the effects of contact and the effects of heat. I touch a surface to see if it is hard or soft, rough or smooth, just as I touch a surface to see if it is hot or cold; moreover there is no part of the body which is sensible to the effects of contact which is not also sensible to the effects of heat and cold. But we recognize a marked difference between the sense of touch when the tip of the tongue is employed for the moment as the organ of touch, and the sense of taste; yet the difference between taste and touch is not more marked than the difference between heat and touch.

Therefore in dealing with errors

affecting the evidence given by the sense of touch, I consider only those really relating to the effects of contact, dealing separately with those relating to the effects of heat and cold.

Aristotle long since pointed out how the sense of touch may be deceived when the organs of touch are employed in some unaccustomed manner. It was he who first mentioned, if he did not invent, the experiment of rolling a pea between the tips of the first and second fingers, after the second finger has been crossed over the first. This experiment is instructive as showing how much of the significance of the teachings of our senses may be due to the effect of long-continued training. Every time we touch with the finger-tips an object of known shape, we are in reality teaching our fingers that such and such impressions have such and such a meaning. When two fingers are crossed, the finger-tips receive different impressions from those which they receive in their normal position, and we naturally misinterpret the meaning of the impressions so received. Thus if I touch with my first and second fingers the sides of a space shaped thus \smile , the out-sides of the fingers come in contact with the curved surface, whereas the insides of the fingers feel such a surface as this, \frown : so soon as the fingers are crossed these effects are reversed; the out-sides of the fingers are brought together by the crossing and touch a surface shaped thus \smile , telling us apparently that it is really a surface shaped thus \frown that we are touching. To test this apply the crossed fingers to a surface shaped \smile , so that the fingers touch the convex curves near their place of meeting; now we find that we no longer seem to be touching two curves, but one. It must be admitted, however, that this experiment is less striking than the other; the information conveyed by the finger-tips instead of seeming definitely and decidedly incorrect, appears but vaguely erroneous.

Let us try a few other experiments with crossed fingers. Take a pen-holder or pencil, and with first and second fingers crossed slide the finger-tips along the pencil or holder. If the eyes are closed the fingers seem to tell us emphatically that we are feeling two parallel rods. Yet if the eyes are directed to the finger-tips the illusion disappears. This is not, however, because the eyes assure us that there is but one pen or pencil; it is because the eyes show us that the fingers are crossed. To show that mere knowledge will not save us from the illusion, feel with the crossed fingers the tip of the nose. We know certainly that we have but a single nose-tip; yet the absurd and illusory feeling that we have two noses is immediately produced. The illusion is strengthened if the crossed finger-tips are caused to slide along the ridge of the nose. Very curious illusions are produced if the crossed finger-tips are carried along either lip, or between the lips, or along the bone ridge below either eye or along the ridge above the eye, or round the ear, and so forth. But in my own case, the oddest illusion of all is obtained by crossing the forefinger behind the little finger, (both being bent somewhat toward the palm, so that the second or third fingers are behind them) and then feeling with these crossed fingers the tip of the nose: for now, not only does the nose appear double, but *one nose appears to be longer than the other*. One can easily understand why this is. Under ordinary conditions the first and little fingers cannot at the same moment feel two bodies which are equidistant from the observer,—or let us say from the palm. If, for instance, we place the forefinger tip on the end of a white note on the piano, the little finger tip can only rest on the end of another white note by bending the hand: we can, however, touch an end of a black note with the forefinger tip while the third finger tip touches the end of a black note, without bending the hand. The lesson taught, then,

by constant experience (unnoticed through its very familiarity) is that two bodies so felt extend to different distances. But in the experiment with crossed forefinger and little finger, the finger-tips touch at the same moment the same nose-tip, which appears double because touched by the outside edges of the fingers, and the two noses appear of unequal length because it seems as though the little finger touched one while the forefinger touches the other, each of them at the tip.

Other singular effects may be produced by crossing the fingers, varying the combinations. If the forefinger and second finger of the left hand be crossed as well as those of the right, and a small object be held between the crossed pair of each hand, the most incorrect ideas of the shape of the object are given. I have just tried the experiment, for instance, on a small box of pen-nibs, holding two opposite corners, one between the crossed finger-tips of the right hand, the other between those of the left hand; it was impossible to realize that the object thus held had any regularity of shape at all.

Another experiment on the sense of touch depends on the circumstance that usually the outsides of the hands are so placed that if both touch two surfaces at the same time those surfaces are not in the same direction. Of course the two hands can be placed side by side with their backs uppermost and a flat surface may so touch both; but usually the palms are toward each other, and this is especially the case when both hands are used in holding anything. Place the hands together, palm to palm, then cross the arms so that the hands are back to back; if now a book is held between the backs of the hands its edge appears bent. The force of this illusion is different with different persons; but let not those who are not affected by it rejoice as being less easily deceived than their fellows; for, as Sir David Brewster remarks in speaking of an illusion affecting sight.

it often happens that the most observant are those most completely deceived by such illusions.

There is another curious illusion of touch which appears to depend on the teaching which the hands and arms have had (unconsciously) in estimating the dimensions of bodies held in the normal way, in front of the body. Suppose a book lying on a table before you, the back of the book being toward the right. Take hold of it by the nearest right-hand corner (that is, holding it by the end of the back nearest to you) and pass it over the right shoulder so that the face which had been uppermost lies against the back of the right shoulder in a nearly vertical position. Now pass the left hand round behind you under the left shoulder-blade till you can grasp with it the edges of the leaves. You will now find that though you *know* from the feel of the edges that your left hand holds a side several inches from the back held by the right hand, that side of the book appears to be a continuation of the back of the book,—so far as direction is concerned. The explanation appears to be simply this:—When an object like a book is held in front of the chest, the right hand holding one side, the left hand reaches the opposite side without effort or stretching; while with a slight amount of stretching the side held by the right hand can be reached now when the book is held behind the back in the way described above, an effort is required to reach with the left hand the side opposite that held by the right, hence the same effect is produced on the mind as when in the normal way of holding objects of the kind the left hand is stretched over to the right hand's side of the object; thus instead of the left hand touching the side opposite that held by the right, it appears to touch the same side.

So much for illusions affecting touch. Or rather, these afford sufficient evidence that the sense of touch may be readily deceived. But in reality, scarcely a day passes without

our noticing, if we are at all observant, illusions affecting this sense. If we observe the circumstances under which such illusions occur we generally find that they arise when some organ of touch is used in a novel or unusual way. But in the majority of cases arising in ordinary life the sense of touch acts in combination with either the sense of sight or the sense of hearing, and consequently the illusions arising are not such simple examples of errors in the evidence afforded by the sense of touch as those considered above.

The sense of heat is in like manner usually associated with the sense of sight, so that illusions affecting it are either corrected or modified by visual impressions. Yet there are cases where this sense is deceived when acting alone. For instance, there is the well known experiment in which after one hand has been placed for a time in water as hot as can be borne, and the other in ice-cold water, both hands are plunged simultaneously into tepid water. Immediately the hand which had been in very hot water recognizes a comfortable sense of coolness, and as it were pronounces the water cold; the other hand as quickly recognizes a comfortable sense of warmth and pronounces the self-same water hot. Here even sight will not correct the illusion. We see as plainly as possible that both hands are in the same basin, yet one hand seems to be in warm water, the other in cold. I find a singular effect produced if while the attention is strongly directed to the circumstance that both hands are in the same water, the hands are freely moved about in the water. For it seems then as though there were currents of hot and cold water in the same basin, moving so as to follow or rather to accompany the hands.

Without making definite experiment in this way, we can easily in the ordinary experiences of life, recognize the readiness of the heat sense to be deceived. Thus we come

out of a warm room into the hall outside and find the air there pleasantly cool. We then, perhaps, see a friend home through the cold night air and presently return to the same hall. But now, coming into it from the cold outer air, we find it pleasantly warm.

Professor Le Conte remarks that "during the Arctic voyages made by Parry, Franklin, Ross, Kane, Nares, and others, it was found that a zero temperature seemed quite mild after the thermometer had been twenty or thirty degrees below that point." But, although in California temperatures of twenty or thirty degrees below zero may not be common, an American has no occasion to leave the United States, or even the middle states, to experience the illusion in question. I have repeatedly walked along the streets of New York with the temperature a degree or two below zero, without wearing an overcoat or feeling the want of one, when such a temperature has followed a few days of much colder weather. And conversely, even as I write I am feeling unpleasantly cold at Columbia, South Carolina, with the temperature only just below zero (and the air still), simply because I have been enjoying during the last few days in Charleston, S. C., a soft and balmy warmth resembling that of a June day in England.

Again, in caverns like the Mammoth Cave, Kentucky, or Kent's Hole in Devonshire, there is in summer always a sense of coldness and in winter always a sense of heat, yet in reality the thermometer shows that, as might be expected, the air is somewhat warmer within such caves in summer than it is in winter. Here, then the illusion is not only incorrect but the very contrary of the truth; the air seems colder when it is really warmer and warmer when it is really colder. Because the range of temperature is much less within the cave than in the open air, we are deceived into the idea that the temperature really ranges the reverse way from that in which it actually varies.

A more subtle illusion relating to heat is that arising from difference in the conducting power of various substances with which the skin is brought into contact. Thus if we plunge into water of the very same temperature, when tested by the thermometer, as the surrounding air, both being really cooler than the body, the water seems cold, because being a better conductor than air, it immediately begins to carry off more of the body's warmth. On the contrary, the self-same substance—water—not only feels hot but is unbearably hot when at a temperature far below that of the surrounding air in a Turkish bath.

It is to be noticed that in this case the sense of heat while in one respect leading to an erroneous idea, in another and a much more important point gives correct information. If one were to trust the teachings of the thermometer, and infer that one might as well remain in water as in air seeing that the water and the air are of the same temperature, one would make a serious mistake, and suffer a good deal of harm through the rapid abstraction of warmth from the body. The heat sense, by telling us wrongly that the water is colder than the air, conveys at least the much more important information that we are losing heat while in the water,—and therefore saves us from the danger of getting unduly chilled, as we might if we trusted to the thermometer alone. In the reverse case, the sense of heat acts even more directly and emphatically for our benefit.

I remember a case in point which occurred at the Hummums. Some one who had heard that the temperature of water in the hot rooms is always much lower than the temperature of the air, but had not considered the matter with actual-reference to the requirements of the human body, supposed that he would gain decidedly in comfort if instead of sitting on the non-conducting felt or flannel of the seats, he were to

substitute a roll of towels well soaked in water. He found as a matter of fact that the arrangement thus suggested by the thermometer was very far from being welcomed by the nerves of touch,—whose repugnance to the arrangement was indeed most emphatic.

It is hardly necessary to say, perhaps, that the whole question of clothing, especially for young people, depends on the relation between the conducting powers of various substances used for clothing. In this matter the sense of heat gives more trustworthy information than the thermometer, clothes which seem to be of the same temperature if tested by the thermometer affording very different degrees of protection against the loss or the too rapid accession of heat.

In passing, I may note here an important consideration as to the clothing proper for children. In their case as in the case of grown folk the sense of heat gives the best information as to what is really desirable in the way of clothing. But grown people are apt to forget the experiences of their childhood, and to decide what is best for children from their own ideas as to what ought to be best. A child complains of cold or of heat sooner than a grown person; but much less attention is paid to the complaints of children on such matters than to our own slightest suggestions of personal discomfort. And children are much less carefully guarded against heat and cold than grown persons guard themselves. The idea seems to be that children can stand any changes of temperature; though, oddly enough, children's own idea (which is really not very far from the truth) that they can stand anything in the way of rich and indigestible eating, is not much considered by older persons. Now, when a child shows by its words or actions that it suffers sooner from changes of temperature than grown people do, it in reality expresses its sense of an important truth. A child cools and

warms more quickly than a man; for precisely the same reason that a small cinder cools more quickly than a large one, or that a small fire burns out more quickly than a large furnace. Compare the case of a child three feet high with that of a man six feet high. Neglecting slight differences of build, the man is about eight times as large as the child, or contains eight times as much matter. But the surface of the man is not eight times as large as the surface of the child; it is only four times as large. Thus supposing the man and the child to come out of a warm room into the cold outer air, being both at the same temperature, the man has eight times as much heat to part with as the child has; but he only parts with four times as much heat, moment by moment, if he and the child are similarly clothed. Thus the child's loss of heat, moment by moment, though only one-fourth of the man's loss of heat, bears twice as great a ratio to the child's total supply of heat. The child will cool as much in one minute as the man cools in two minutes, or in half-an-hour as the man cools in an hour. If the weather outside is so cold that the man would suffer serious injury to his health after an hour's exposure to it, the child will suffer at least an equal injury in half-an-hour. In reality, of course, the child will suffer a greater injury; because apart from his more rapid loss of heat, the child's flesh is more tender and necessarily suffers more from a given loss of temperature. Similar remarks apply to increase of heat, which may be just as mischievous as access of cold. Yet we are too apt to clothe children with total disregard to the circumstances that they require to be protected much more carefully than their elders against rapid changes of temperature. Apart from all questions of propriety, a man would not care even on a fairly warm spring day to go about with his arms and legs bare for any length of time; for he would feel uncomfortably cool: children suffer twice as much on such a day from undue exposure to the air;

yet many foolish folk think nothing of exposing the delicate limbs of children to the cold of winter without protection. They imagine that the numbness and insensibility which really indicate the mischievous effects of the cold, and may permanently affect the child's constitution, are signs of hardening; and because only the hardier survive this cruel treatment they imagine that those hardy survivors owe the strength which enabled them to survive, to the harsh exposures by which that strength was dangerously taxed and perhaps in large measure sapped.

It is, however, the sense of sight which has most thoroughly deceived the student of science, almost justifying Professor Le Conte's statement that no evidence is more misleading and fallacious than the evidence of the senses. So far from seeing being believing, one recognizes that often we see an object wrongly tinted, wrongly illuminated, wrongly shaped, besides that fault of wrong apparent size which we might expect to recognize in the case of a sense like sight (which gives no direct evidence as to distance).

Taking this last defect of sight-evidence first, we note that the eye-sight cannot really be said to delude us when it seems to tell us that—for example—the moon is as large as the sun. All that sight really tells us is that the sun and the moon occupy fields of view of the same apparent size. This, of course, is correct information as far as it goes, and the sense of sight cannot go further. But the sense of sight conveys false ideas to the mind, sometimes even about apparent size.

Perhaps the most remarkable case of the kind—at any rate the most familiar—is the apparent increase of the sun and moon in size as they approach the horizon. Singularly enough, Professor Le Conte does not regard this as an optical illusion; "the visual angle being in both cases precisely the same, the size of the image on the retina must have been the

same." But one might with equal reason say that none of the illusions relating to touch or heat are really illusions, seeing that the actual effects produced on the nerves of touch correspond with the actual shapes or temperatures of the objects felt. In every case of sense illusion the nerves give correct information, it is the interpretation of the information which is incorrect.

The apparent largeness of the moon near the horizon is of course a real illusion. It is often elaborately explained as due to the magnifying power of the layers of air through which the moon is viewed. In the "Wide Wide World" the overwhelmingly wise John Marchmont explains the matter thus to Ellen Montgomery (I hope my recollection of the names is trustworthy, but the book came out a long while ago, and I have not seen it since its first appearance). But the moon is not magnified at all in *that* sense. She does not occupy a larger space in the visual field. Nay she looks rather smaller when near the horizon, being then nearly 4,000 miles nearer to us than when overhead. It is easy to show this; and in passing I cannot too earnestly recommend those who wish to form correct ideas about the apparent sizes, shapes, positions, and movements of the heavenly bodies, to test such matters in simple ways such as I am about to suggest in the moon's case. Cut out in card a circle exactly half an inch in diameter, leaving a projecting piece of card outside some part of the rim. Then take a straight rod about 54 inches long, and with a tack through the projecting piece fasten the disc at one end of the rod, so that the whole disc is visible from the other end. Now it will be found that if the rod be directed toward the moon, the disc of card at the end furthest from the eye, will just hide the moon from an eye placed at the nearest end. Whether the moon is high up in the sky or close to the horizon the same thing happens. The moon looks just as large high up as she does low down, on any

given night. Of course, as the moon's path round the earth is not quite circular there is a change in the moon's apparent size in the course of each lunar month,—a change which the method of measurement just described will serve very well—rough though it is—to indicate. Just as the sun varies in apparent diameter as the year progresses, his diameter on January 1, bearing to his diameter on July 1 the ratio 31 to 30, so the moon varies as the month progresses, and in greater degree. But look at the moon from one end of the rod when she is rising and you will find the card disc at the other end cover her either exactly or very nearly, and when she is at her highest on the same night you will find her as exactly or as nearly covered by the card disc the rod being directed in the same way toward her, and the disc viewed by an eye placed at the other end of the rod.

Here then is an optical illusion by which the idea is conveyed that the moon is larger when low down than she is when high above the horizon, though in reality occupying as large (nay, even a slightly larger) portion of the visual field. It is the same with the sun, and the same also with any one of the familiar star groups which pass from close by the horizon to a great distance above it. How is this deception to be explained?

The increase of the moon's size near the horizon has been attributed to the circumstance that when she is low down we can compare her apparent size with that of known objects near the horizon, and seeing that she looks larger than many objects which are known to be really large, as trees, houses, and so forth, we can judge that she is larger than we had (unconsciously) supposed her to be when high up. But I cannot see that there is any force in this explanation. It is true that if the moon when low down is looked at through a tube of any sort, hiding surrounding objects, she no longer appears so large. But this does not prove that the surrounding objects make her look larger, other

relations besides those depending on the appearance of surrounding objects are concealed by the tube; and amongst them that which is, I take it, the true explanation of the moon's apparent increase of size.

The fact is that the increase in the apparent size of the moon and other celestial objects as they draw nearer to the horizon is connected with a much wider illusion affecting the apparent dome-shape of the sky over our heads.

Of course when we look at a cloud-laden sky we perceive at once that our range of view is not limited by the interior of a hemispherical surface. The region above our heads seems shaped like the interior of a very much flattened dome, the horizon being much farther away than the sky directly overhead. When the sky is clear the dome above us seems more arched, but it never appears like a true hemisphere. Probably to ordinary eye-sight the star-strewn sky on a clear night appears shaped as though the part directly overhead were at only about one-quarter the distance of the part near the horizon. But of course the range of the moon's path around any observer on earth is such that her distance varies very slightly, as if in fact she always moved on the inner surface of a sphere having the observer at its center. To one then who entertains unconsciously the erroneous notion that the sky is arched over the earth, in such sort that the region overhead lies at about a fourth the distance of the horizon, the expectation unconsciously arises that when the moon is close to the horizon she will present a smaller disc than when she is high up in the sky. As a matter of fact, she looks about as large (not quite, but very nearly), that is, she subtends the same visual angle; but the effect of her looking so much larger than had been unconsciously expected, is to suggest that she is really larger than when high above the horizon. We apply to her the same unconscious reasoning by which we recognize that a tree on the horizon

which subtends the same apparent angle as a tree close by is much the larger of the two. Having in reality no means of estimating the real size of the moon, we make its apparent position guide us to an idea of its size, and as it seems—being near the horizon—much farther away than when high, yet looks no smaller, we judge it to be really larger.

I had a singular example recently of the effect of position in forcing an illusory idea on the mind, even when the truth was well and even familiarly known. I was in the streets of Charleston (South Carolina) engaged in conversation, but my eyes directed toward the upper ridge of a projecting balcony. While I talked, I saw what looked like a bird's head rising just beyond the ridge, and in a moment or two there was the creature, a tiny but very oddly shaped bird apparently fluttering above the balcony. It looked no larger than a humming-bird. Now I knew at once that I was not looking at a bird, because I could see that the object had a pendent waving tail such as no bird ever had. I knew as well that it was not a small bird close by, but a Chinese kite at a considerable distance, as I knew that it was day; yet because my mind had started with the wrong idea that the object was just above the balcony, I could not for several seconds shake off the absurd impression that there was a miniature bird-kite fluttering above a straight stone ridge where assuredly was no string attached to it. I take it that the deception by which, against my own knowledge, I was for awhile made to imagine the kite much smaller than it really was, because it seemed much nearer than such an object is usually seen, was precisely akin to the illusion by which, against our own knowledge we are led to imagine the moon much enlarged near the horizon because it there seems much farther away than as seen high up toward the zenith.

The illusion as to the shape of the heavens around us and the sky above

us (not the same thing be it noticed) is one which deceives us all the time,—at least I have never met with anyone who has been able to correct either form of illusion. We conceive the heavenly bodies overhead to be nearer to us than those near the horizon, the heavenly concave being presented as somewhat flattened overhead: and on the other hand a cloud-covered sky appears arched overhead instead of having a flat horizontal surface. Do what we will we cannot force the mind to feel either that the stars overhead are no nearer than those by the horizon, or that the clouds near the horizon are as much farther away than those overhead, as they really are. The clouds low down seem somewhat farther away than those above our heads,—perhaps four or five times farther: but in reality they are usually twenty or thirty times farther from us. But the mind refuses to present to us the much greater distance of those low-lying clouds.

It may be said, indeed, that the mind is unable to conceive a spherical surface, either convex or concave, beyond a certain size, which differs probably in the case of each person, differs certainly as life advances, and is far short of the dimensions of any one of the celestial globes, except possibly the moons of Mars. It may be that if living in Fear or Terror (as the attendants on Mars have been called) we might recognize the rotundity of the surface of our home, seeing that probably neither of these moons has a diameter of more than twenty miles. But it is certain that no one can appreciate the rotundity of our earth, in such sort that not merely the circumstance that the globe is rotund is recognized, but the dimensions of the globe of which the region we see at any moment is a part. The best proof of this is found in the fact that the earth's surface appears concave so soon as we see any very large extent of it. As seen from a balloon, for instance, the earth seems like a gigantic basin, the mind not being able to take in the real truth that the earth is too

large for the horizon to dip recognizably even when the eye is two or three miles above the earth's surface. If one could pass away from the earth to distances so great that she would be visible as a globe, we should still be unable to form any idea of her size,—just as now the sun, moon, planets, and stars tell the eye nothing of their real dimensions.

A curious question here suggests itself:—Supposing one could pass away from the earth's surface steadily till she appeared like a globe, what would be the changes her aspect would undergo? She would certainly appear concave until a great height had been attained; and as certainly she would eventually appear a globe as the sun and moon do: but in what way, I wonder, would the apparently concave surface pass to a manifestly convex surface? Would this happen gradually, or would the conviction suddenly force itself on the mind that the surface which had appeared concave was really convex? There is a familiar illusion which illustrates such a change as this, and seems to suggest that the change of appearance would be sudden. If you look through a lens, inverting the object seen, at a convex surface, it appears to be concave (a coin under the same conditions appears to have all the parts which are really in relief depressed) because the mind recognizes the evidence given by the shadows without being conscious that this evidence has been inverted by the action of the lens. Now if, while the convex surface thus appears concave you introduce into the field of view some object which shows which way the shadows really fall—as an upright pin, or the like—you find the seeming concavity at once changed to convexity, the mind being unable to note how the change takes place, so rapid is it. Possibly this would be the way in which the seeming concavity of the earth would change to convexity, as we passed away to the distances at which the earth would appear like a celestial orb.

Illusions affecting our ideas about the apparent brightness of objects are even more deceptive than those affecting form. The French astronomer Chacornac wrote an article once in explanation of the superior brightness of the discs of Jupiter and Saturn near the edge. The explanation was ingenious, and would have perhaps thrown light on the nature and condition of the giant planets, if it had only chanced that the superior brightness which he explained had a real existence. As a matter of fact, however, so far are the parts of Jupiter and Saturn near the edge of their discs from being brighter than the parts near the middle that the precise reverse is the case, and in quite a marked degree. I was first led to observe this by theoretical considerations, which seemed to suggest that the light from the parts of Jupiter near the edge ought to be very much less than the light from the middle of the planet's disc. It so chanced that just as I had satisfactorily reasoned this out, I came across Chacornac's article explaining why the edge is so much and so obviously brighter than the middle. This led me to inquire whether the case really was as he supposed or not. Now, to those who have paid attention to the phenomena of Jupiter's satellites, many circumstances are known which show that the edge of Jupiter's disc must be darker than the middle. For example, a satellite looks light when near the edge, dark when on the middle of the disc; or else (which proves the same thing) a satellite is scarcely visible near the edge, being so nearly of the same lustre as the planet, but as it passes on to the brighter central parts of the disc it becomes a dark spot, sometimes even looking as dark as its own shadow close alongside. All this in reality proves that the edge is darker than the middle of the disc; yet it looks decidedly brighter. I suggested, therefore, to a friend who was making experiments on the luminosity of various celestial bodies, that he should test this matter by deter-

mining whether the parts of Jupiter's disc near the edge or the parts near the middle remained longest visible when the light of the planet was gradually extinguished by means of a neutral-tinted darkening glass (graduated from almost complete transparency at one hand to almost complete opacity at the other). The result was decisive, and exactly contrary to the evidence of the eyes. The parts which to the eye seemed so obviously the brightest were the first to yield to the absorption of the light, the parts which looked least bright remained visible longest. Of course, the illusion is easily explained. By contrast with the black background of the sky the parts near the edge of Jupiter and Saturn look brighter than they really are.

A noteworthy illusion was passingly indicated in what I have just described. I have said that a satellite sometimes looks as dark as its shadow close alongside. Now the shadows of the satellites look black; but the satellite itself cannot be black. We see then that the appearance of blackness does not necessarily imply real blackness. So the spots on the sun look black near the middle of the umbra; yet they cannot be really black there; and indeed when examined so that the effect of contrast is avoided they are found to emit a considerable amount of light. Another case of illusion may be noticed in total eclipses of the sun. Here the body of the moon looks black; yet in reality it is lit up at least twelve times as brightly as a landscape under full moonlight, for the earth is at the time of solar eclipse shining full upon the half of the moon turned earthwards, and her disc is $13\frac{1}{2}$ times as large as the moon's appears to us. To my mind, one of the best proofs of the brightness of the solar corona, is found in the seeming blackness of the moon's disc during total solar eclipse.

But the seeming whiteness of the moon's disc when she is full is quite as much an illusion as its seeming blackness when she is between the

sun and us. For the moon is not really white. She is much more nearly black. Regarding 100 as representing perfect whiteness, the average tint of the moon's surface would be represented by only 17. Probably the darker portions, which, when she is full look only slightly less white than the rest, are as dark as our porphyries and syenites.

Another remarkable illusion affecting brightness is that which has deceived several students of the moon in the case of the floor of the lunar crater, Plato. This broad expanse seems to grow darker as the sun rises higher above its level; but this is a pure illusion, due to the gradual diminution of the black shadows of the surrounding mountains. By contrast with these shadows the floor looks lighter than it really is; as they diminish it seems to grow darker; when they disappear altogether it looks darkest; and as they gradually grow larger in the afternoon and evening of the long lunar day there, the floor seems to get light again. As a matter of fact the floor gets brighter as the sun rises higher above its level, and darkens again as the sun gradually nears the horizon of Plato.

The illusions affecting motion are too remarkable and too numerous to be dealt with properly in the small space remaining to me here. I may, perhaps, consider them hereafter in a separate short essay.

ANIMALS OF THE PRESENT AND THE PAST.

MR. GRANT ALLEN (for to his facile pen the article on "Big Animals," in a recent number of the *Cornhill Magazine* may safely be attributed), has done good service in showing how unfounded are two very prevalent ideas respecting the past of this earth on which we live—viz., first, the idea that the various races of animals which appear in the geologic record all existed at some remote time ("in those

days," meaning some imaginary epoch specially belonging to geological science); and secondly, the idea that in past ages the animals existing on the earth were very much larger than those now known.

As regards the first idea, relating to geological time, the Pleistocene age is really as yesterday in the past history of our earth, and the Pliocene as the day before yesterday. The mammoth in the northern hemisphere, and the moa in the southern, are creatures of yesterday, while the mastodon, on the same time scale, can be set no further back than the last generation or so. On the other hand, the "monstrous" marine saurians of the Jurassic era are of remote antiquity. Mr. Allen expresses the relation, in point of time, neatly, when he says that "to compare the relative lapses of time with human chronology, the mastodon stands to our own fauna as Beau Brummel stands to the modern masher, while the saurians stand to it as the Egyptian and Assyrian warriors stand to Lord Wolseley and the followers of the Mahdi." In fact, the mind, as regards its power of dealing with time-intervals, is lost in the presence of the vastness of the era to which our own period belongs as compared with the minute span over which history extends its survey—is lost, yet once more, in comparing even with the vastness of the glacial period the seemingly immeasurable duration of the Pliocene and its still longer predecessor the Miocene, and, endeavoring to look beyond these into still remoter depths of past time, is simply appalled. The Eocene was so long-lasting, that the sequent eras, which with it make up the Tertiary period, seem by comparison as seconds compared with hours. But the whole duration of the Tertiary period is insignificant compared with the inconceivable length of the Secondary period, while the Secondary period, in turn, is short compared with the Primary period, and even this tells us only of the close of a yet more tremendous time-interval, during which

no trace was left of the earth's progress to the world form, any more than the sea leaves any record of the progress of the storms which sweep over its vast surface.

Truly it is amazing to consider now, when these vast periods of time have taken their place among the recognized and assured teachings of the great earth volume, that but half a century or so ago a struggle was still maintained to reduce our estimate of the earth's past existence to a few thousands of years, while multitudes of well-meaning persons imagined that an eternity of future happiness or misery depended on each man's rejection or acceptance of the doctrine which God's work, the earth, assuredly teaches. Yet, strangely enough, the school of those who maintained that hopeless struggle is not ashamed even now to denounce the followers of the scientific school for accepting the obvious meaning of these new pages of that great volume which have since been turned over.

With regard to the dimensions of the modern inhabitants of the earth, we must remember that to every era of the earth's history a special kind of development has been specially appropriate. It is certain that the great land monsters of the Jurassic age could not exist now. For while their numbers must have always been limited, even when surrounding conditions favored their existence, the powers of the human race at the present time would be fatal to the existence of these unwieldy monsters. The monstrous eft, which of old was lord and master of earth, might maintain, at least for awhile, the position of lord and monarch still, were it not for man. But with man in the arena against the *Atlantosaurus*, one or other would have to give way, and it would not be man. The mammals of the Pliocene age were not so much greater than their modern representatives that we need consider them specially. And assuredly when we turn to the sea-monsters of our own

time we need not fear comparison with even the mightiest monsters of past geological ages. The *Rorqual* attains sometimes to a length of fully one hundred feet, the razor-back whale sometimes measures seventy feet, and there are other cetaceans not much inferior in size. As to the dimensions of sharks, some doubt appears to exist. Considering the nature of the creature, and that men have never found it desirable to hunt for sharks as they have for whales (possibly if they had they would have made but unsatisfactory progress in the art of shark-hunting), it would be absurd to suppose that we have become acquainted even with the largest existing varieties, far less with the largest individual specimens. To give an idea of the state of things in regard to sharks, I may record an experience of my own. In the voyage from Auckland, N. Z., to Honolulu, the *City of Sydney* was temporarily disabled by the breaking of a crank-pin. Up to the day when this accident occurred, not one among the crew or passengers had seen a single shark of any kind, though the passengers certainly passed a good half of their time looking at the waters around them. But scarcely had we been at rest a quarter of an hour before the sea all around our disabled ship was literally swarming with sharks. When I learn, therefore, that the naturalists of the *Challenger* expedition have dredged up in numbers from the ooze of the Pacific shark teeth five inches long by four wide, which would indicate that the sharks to which these teeth belonged were a hundred feet long, I feel no doubt that sharks of these dimensions are still in existence. Dr. Günter, of the British Museum, writes, it is true, that "as we have no record of living individuals of that bulk, the gigantic species to which the teeth belonged must probably have become extinct within a comparatively recent period." And Mr. Grant Allen speaks of him as a very cautious naturalist for thus avoid-

ing the natural conclusion that the species is not extinct at all. But to my mind it savors of much greater daring to imagine the extinction than the existence of these gigantic carcharodons. We know of nothing which could probably have led to the extinction of monsters such as these, which would have all their own way among the denizens of the great deep. Man has not sought their destruction as he has sought the destruction of species of whales which nevertheless still exist; they cannot have been attacked and destroyed by other species of fish, or even conceivably deprived of the means of living by more active and predaceous creatures. That they should die out, then, seems altogether unlikely; whereas it is altogether natural that they should remain unknown amid the depths of the mighty ocean, for they would keep to the great deep, avoiding even an approach to shallows, nor would they be apt to show where the smaller and more numerous orders of sharks are seen.

Albeit I may remark that Mr. Allen seems to me mistaken in assuming that the monstrous sharks to whom these teeth belonged were as large as any sea creatures of remote geological eras. I have in my possession shark's teeth collected in the neighborhood of Charleston, S. C., which are $5\frac{1}{2}$ in. long by $4\frac{1}{2}$ in. broad, and in the Museum of Charleston they have shark's teeth much larger even than that.

The largest calamaries of the present time are certainly larger than any of those whose remains exist as fossils. A cuttle thrown up on the shore of Newfoundland was 80 ft. long.

On the whole, it may be doubted whether at any time in the past history of the earth the average size of the ten largest creatures by sea and land exceeded the average size of the ten largest species existing at the present day.—*Newcastle Weekly Chronicle.*

LIFE IN OTHER WORLDS.

So far back as 1869, I had begun to regard doubtfully the theory that all the planets are the abode of life. The careful study of the planets Jupiter and Saturn had shown that any such theory regarding these planets is altogether untenable. The great difference between them and the members of the smaller planetary family of which our earth is the chief, suggested that in truth the major planets belong to another order of orbs altogether, and that we have as much or as little reason for comparing them to the sun as for comparing them to the earth on which we live. Nevertheless, in the case of Venus and Mars, the features of resemblance to our earth predominate over those of dissimilarity; and it was natural that, while rejecting the theory of life in Jupiter or Saturn as opposed to all the available evidence, I should still consider the theory of life in Mars or Venus as at least plausible. Ideas on such subjects are not less tenacious than theories on matters more strictly scientific. Not only so, but the bearing of newly-recognized facts on long-entertained theories is not at once recognized even by those most careful to square their opinions according to the evidence they are acquainted with. Again and again it has happened that students of science (in which term I include the leaders of scientific opinions) have been found recording and explaining in one chapter some newly-recognized fact, while in another chapter they have described with approval some old theory, in total forgetfulness of the fact that with the new discovery the old theory has become altogether untenable. Sometimes the incongruity is not recognized until it has been pointed out by others. Sometimes so thoroughly do our prepossessions become "bone of our bone and flesh of our flesh" that even the clearest reasoning does not prevent the student of science from combining the

acceptance of a newly-discovered fact with continued belief in a theory which that fact entirely disproves. Let the matter be explained as it may, it was only gradually, that both the Brewsterian and Whewellite theories of life in other worlds gave place in my mind to a theory in one sense intermediate to them, in another sense opposed to both, which seems to accord better than either with what we know about our own earth, about the other members of the solar system, and about other suns which people space. What I now propose to do is to present this theory as specially illustrated by the two planets which now adorn our skies at night, and by the ruddy but at present invisible Mars.

But it may be asked at the outset, whether the question of life in other worlds is worthy of the attention thus directed to it. Seeing that we have not and can never have positive knowledge on the subject, is it to be regarded as, in the scientific sense, worthy of discussion at all? Can the astronomer or the geologist, the physicist or the biologist, know more on this subject than those who have no special knowledge of astronomy, or geology, or physics, or biology? The astronomer can say how large such and such a planet is, its average density, the length of its day and its year, the light-reflecting qualities of its surface, even (with the physicists' aid) the nature of the atmosphere surrounding it, and so on; the geologists can tell much about the past history of our own earth, whence we may infer the variations of condition which other earths in the universe probably undergo; the physicist, besides aiding the astronomer in his inquiries into the condition of other orbs, can determine somewhat respecting the physical requirements of living creatures; and the biologist can show how the races inhabiting our earth have gradually become modified in accordance with the varying conditions surrounding them, how certain ill-adapted races have died out while well-

adapted races have thriven and multiplied, and how matters have so proceeded that during the whole time since life began upon our earth there has been no danger of the disappearance of any of the leading orders of living creatures. But no astronomer, or geologist, or physicist, or biologist, can tell us anything certain about life in other worlds. If a man possessed the fullest knowledge of all the leading branches of scientific research, he would remain perfectly ignorant of the actual state of affairs in the planets even of our own system. His ideas about other worlds must still be speculative; and the most ignorant can speculate on such matters as freely as the most learned. Indeed, the ignorant can speculate a great deal more freely. And it is *here*, precisely, that knowledge has the advantage. The student of science feels that in such matters he must be guided by the analogies which have been already brought to his knowledge. If he rejects the Brewsterian or the Whewellite theory, it is not because either theory is a mere speculation for which he feels free to substitute a speculation of his own; but because, on a careful consideration of the facts, he finds that the analogies on which both theories were based were either insufficient, or were not correctly dealt with, and that other analogies, or these when rightly viewed, point to a different conclusion as more probable.

Nor need we be concerned by the consideration that there can be no scientific value in any conclusion to which we may be led on the subject of life in other worlds, even though our method of reasoning be so far scientific that the argument from analogy is correctly dealt with. If we look closely into the matter, we shall find that as respects the great purposes for which science is studied, it is as instructive to think over the question of life in other worlds as to reason about matters which are commonly regarded as purely scientific. It is scientific to infer from observations

of a planet that it has such and such a diameter, or such and such a mass; and thence to infer that its surface contains so many millions of square miles, its volumes so many millions of cubic miles, its mass so many billions or trillions of tons; yet these facts are not impressive in themselves. It is only when we consider them in connection with what we know about our own earth that they acquire meaning, or, at least, that they have any real interest for us. For then alone do we recognize their bearing on the great problem which underlies all science,—the question of the meaning of the wonderful machinery at work around us; machinery of which we are ourselves a portion.*

In suggesting views respecting Jupiter and Mars unlike those which have been commonly received with favor, it is not by any means my purpose, as the reader might anticipate, to depart from the usual course, of judging the unknown by the known. Although that course is fraught with difficulties, and has often led the student of science astray, it is in such inquiries as the present the proper, one may almost say the only, course. The exception I take to the ordinary views is not based on the fact that too much reliance has been placed on the argument from analogy, but that the argument has been incorrectly

employed. A just use of the argument leads to conclusions very different from those commonly accepted, but not less different from that theory of the universe to which Whewell seems to have felt himself driven by his recognition of the illogical nature of the ordinary theory respecting the plurality of worlds.

Let us consider what the argument from analogy really teaches us in this case.

The just use of the argument from analogy requires that we should form our opinion respecting the other planets, chiefly by considering the lessons taught us by our own earth, the only planet we are acquainted with. Indeed, it has been thus that the belief in many inhabited worlds has been supported; so that if we employ the evidence given by our own earth, we cannot be said to adopt a novel method of reasoning, though we may be led to novel conclusions.

The fact that the earth is inhabited, affords, of course, an argument in favor of the theory that the other planets are also inhabited. In other words a certain degree of probability is given to this theory. But we must look somewhat more closely into the matter to ascertain what the probability may amount to. For there are all orders of probability, from certainty down to a degree of probability so low that it approaches closely to that extremest form of improbability, which we call impossibility. It is well at once to take this logical basis; for there are few mistakes more mischievous than the supposition that a theory supported by certain evidence derives from that evidence a probability equal to that of the evidence itself. It is absolutely certain that the one planet we know is inhabited; but it by no means follows certainly that planets like the earth support life, still less that planets unlike the earth do so, and least of all that every planet is now the abode of life.

A higher degree of probability in favor of the theory that there are many inhabited worlds arises from a

* It has often seemed to us that a description, by the close observer Dickens, of the fancies of a brain distempered by fever, corresponds with feelings which the student of science is apt to experience as the sense of the awful mystery of the universe impresses itself on his soul:—"The time seemed interminable. I compounded impossible existences with my own identity. . . . I was as a steel beam of a vast engine, clashing and whirling over a gulf, and yet I implored in my own person to have the engine stopped, and my part in it hammered off." Of all the wonders that the student of science deals with, of all the mysteries that perplex him, is there aught more wonderful, more perplexing than the thought that he, a part of the mighty machinery of the universe, should anxiously inquire into its nature and motions, should seek to interpret the design of its Maker, and should be concerned as to his own share in the working of the mysterious mechanism?

consideration of the *manner* in which life exists on the earth. If one could judge of a *purpose* (according to our way of thinking) in all that is going on around us, our earth might teach us to regard the support of life as Nature's great purpose. Earth, water, and air alike teem with life. No peculiarities of life seem able to banish life. As I have said elsewhere, "in the bitter cold within the Arctic regions, with their strange alternations of long summer days and long winter nights, their frozen seas, perennial ice, and scanty vegetation, life flourishes in a hundred different forms. On the other hand, the torrid zone, with its blazing heat, its long-continued droughts, its strange absence of true seasonal changes, and its trying alternations of oppressive calms and fiercely-raging hurricanes, nourishes even more numerous and varied forms of life than the great temperate zones. Around mountain summits as in the depths of the most secluded valleys, in mid-ocean as in the arid desert, in the air as beneath the surface of the earth, we find a myriad forms of life." Nor is the scene changed when, with the mind's eye, we contemplate the earth during past ages of her history, even to the most remote stage of her existence as a planet fit to be the abode of life. Whenever there was life at all, there was abundant life. For, though no traces remain of a million forms of life which co-existed with the few forms recognized as belonging to this or that geologic era, yet we can infer from the forms of which traces remain that others must have been present which have left no trace of their existence. The skeletons of mighty carnivora assure us that multitudes of creatures existed on which those monsters fed. The great sea-creatures whose remains have been found, attest the existence of many races of small fish. The mighty Pterodactyl did not range through desert aerial regions, for he could exist only where many orders of aerial creatures also existed. Of

minute creatures inhabiting the water we have records in the strata formed as generation after generation sank to the sea bottom after death, whereas the correspondingly minute inhabitants of the land and of the air have left no trace of their existence; yet we can feel no reasonable doubt that in every geologic age, forms of minute life were as rich in air and on the land as in the sea, or as they now are in all three. Of insect life all but a few traces have passed away, though occasionally, by some rare accident, even so delicate a structure as a butterfly's wing has left its record, not only attesting the existence of hosts of insects, but showing that delicate flowers, with all the charms of sweet perfume and variegated color, existed in those times as in ours. It is no mere speculation, then, but the direct and unquestionable teaching of geology, that throughout the whole time represented by the fossiliferous rocks, life of all kinds was most abundant on our earth.

And while we thus recognize throughout our earth's history as a planet, Nature's apparent purpose of providing infinitely varied forms of life at all times and under the most varied conditions, we also perceive that Nature possesses a power of modifying the different types in accordance with the varying conditions under which they subsist. Without entering here into the vexed question of the actual extent to which the principle of selection operates, we must admit that it does operate largely, and that it must necessarily cause gradual change of every type of living creature toward the most suitable form. This particular operation of Nature must certainly be regarded as an apparent carrying out of the purpose attributed to her,—by our manner of speaking when we say that Nature's one great object is the support of life. If types were unchangeable, life would come to an end upon a globe whose condition is not only not unchangeable, but changes largely in the course of long periods of time.

But types of life change, or can change when required, at least as quickly as the surrounding conditions—save in the case of certain catastrophes, which, however, never affect any considerable proportion of the earth's surface.

Nor is it easy to assign any limits to this power of adaptation, though we can scarcely doubt that limits exist. The earth may so change in the course of hundreds of thousands of years to come that none of the chief forms of life, animal or vegetable, at present existing, could live even for a single year under the changed conditions of those distant times, while yet the descendants of creatures now living (including man) may be as well fitted to the circumstances around them as the most favored races of our own time. Still there must be a limit beyond which the change of the earth's condition, whether through the cooling of her own globe or the diminution of the sun's heat, will be such that no conceivable modification of the types of life now existing could render life possible. It must not be forgotten that Nature's power of adaptation is known to be finite in many cases, and therefore must be presumed to be finite in all cases. The very process of selection by which adaptation is secured implies the continual failure of preceding adaptations. The struggle for life involves the repeated victory of death. The individuals which perish in the struggle (that is, which perish untimely) far outnumber those which survive. And what is true of individuals is true of types. Nature is as wasteful of types as she is of life—

So careful of the type; but no,
From scarped cliff and quarried stone
She cries "a thousand types are gone;
I care for nothing, *all* shall go."

This is, in truth, what we must believe, if, reasoning by analogy, we pass but one step higher in the scheme of creation. We know that Nature, wasteful of individual life, is

equally wasteful of types of life. Must we not infer that she is no less wasteful of those aggregations of types which constitute the populations of worlds? Watching her operations a few brief minutes, we might (setting experience aside) suppose her careful of individual life. Watching during a few generations, we should pronounce her careful of the type, though careless of individual life. But we perceive, when we extend the range of time through which we look, that she is careless no less of the type than of life. Why should this extension of the range of view be the last we should permit ourselves? If we pronounce Nature careful of the planetary populations, though careless of the types of life which make up such populations, we are simply declining to take a further step in the course pointed out for us by the teachings of analogy.

Let us go over the ground afresh. Individual creatures, even the most favored, perish after a time, though the balance may long oscillate between life and death. Weak, at first, each creature which is to live grows at length to its full strength, not without vicissitudes which threaten its existence. As its life progresses the struggle continues. At one time the causes tending to decay seem to prevail a while; at another, those which restore the vital powers. Disease is resisted again and again; at first easily, gradually with greater difficulty, until at length death wins the day. So it is with types or orders of living creatures. A favored type, weak at first, begins after a while to thrive, and eventually attains its fullest development. But from time to time the type is threatened by dangers. Surrounding conditions become less favorable. It ceases to thrive, or, perhaps, passes through successive alternations of decay and restoration. At length the time comes when the struggle for existence can manifestly have but one end; and then, though the type may linger long before it actually disappears, its

disappearance is only a question of time. Now, it is true that each type thus flourishing for a while springs from other types which have disappeared. The favored types of our age are but varieties of past types. Yet this does not show that types will continue to succeed each other in endless succession. For, if we consider the matter rightly, we perceive that the analogue of this circumstance is, in the case of individual life, the succession of living creatures generation after generation. And as we know that each family, however large, dies out in the long run unless recruited from without, so we are to infer that the various types peopling this earth, since they cannot be recruited from without, must at length die out, though to our conceptions the time necessary for this process may appear infinite.

To the student of science who recognizes the true meaning of the doctrine that force can be neither annihilated nor created, it will indeed appear manifest that life must eventually perish from the face of the earth; for he perceives that the earth possesses now a certain fund or store of force in her inherent heat, which is continually though slowly passing away. The sun also, which is a store-house whence certain forms of force are distributed to the earth, has only a finite amount of energy (though probably the inhabitants of the earth are less directly concerned in this than in the finiteness of terrestrial forces). Life of all kinds on the earth depends on both these stores of force, and when either store is exhausted life must disappear from the earth. But each store is in its nature limited, and must one day, therefore, be exhausted.

We have also only to consider that life on the earth necessarily had a beginning to infer that it must necessarily have an end. Clearest evidence shows how our earth was once "a fluid haze of light," and how for countless æons afterwards her globe

was instinct with fiery heat, amidst which no form of life could be conceived to exist, after the manner of life known to us, though the germs of life may have been present "in the midst of the fire." Then followed ages in which the earth's glowing crust was drenched by showers of muriatic, nitric, and sulphuric acid, not only intensely hot, but fiercely burning through their chemical activity. Only after periods infinite to our conceptions could life such as we know it, or even in the remotest degree like what is now known to us, have begun to exist upon the earth.

The reader, doubtless, perceives whither these considerations tend, and how they bear in an especial manner on the opinion we are to form respecting such planets as Jupiter and Saturn on the one hand and Mars on the other. We see our earth passing through a vast period, from its first existence as a separate member of the solar system, to the time when life appeared upon its surface: then began a comparatively short period, now in progress, during which the earth has been and will be the abode of life; and after that must follow a period infinite to our conceptions when the cold and inert globe of the earth will circle as lifelessly round the sun as the moon now does. We may, if we please, infer this from analogy, seeing that the duration of life is always infinitely small by comparison with the duration of the region where life appears; so that, by analogy, the duration of life on the earth would be infinitely short compared with the duration of the earth itself. But we are brought to the same conclusion independently of analogy, perceiving that the fire of the earth's youth and the deathly cold of her old age must alike be infinite in duration compared with her period of vital life-preserving warmth. And what is true of the earth is true of every member of the solar system, major planet, minor planet, asteroid, or satellite; probably of every orb in space, from

the minutest meteorite, to suns exceeding our sun a thousandfold in volume.

If we had any reason to suppose that all the planets sprang simultaneously into being, that each stage of each planet's existence synchronized with the same stage for every other planet, and that life appeared and disappeared at corresponding stages in the existence of every planet, we should be compelled to accept the theory that at this moment every planet is the abode of life. Not only, however, have we no reason to suppose that any one of these conditions exists (and not one but *all* these conditions must exist before that theory can be accepted), but we have the strongest possible evidence, short of actual demonstration, that the births of the different planets occurred at widely remote periods, and that the several stages of the different planets' growth differed enormously in duration; while analogy, the only available evidence on the third point, assures us that little resemblance can be supposed to exist between the conditions and requirements of life in different members of the solar system.

On any reasonable hypothesis of the evolution of the solar system, the eight primary planets must have begun to exist as independent bodies at very different periods. If we adopt Laplace's theory of the gradual contraction of a mighty nebula, then we should infer that the planets were formed in the order of their distances from the sun, the remoter planets being those formed first. And according to the conditions of Laplace's hypothesis, the interval separating the formation of one planet from that of its next neighbor on either side must have been of enormous duration. If we prefer the theory of the gradual growth of each planet by processes of accretion, we should infer perhaps that the larger planets took longest in growing to maturity, or preferably that (according to the doctrine of probabilities) a process which for the

whole system must have been of inconceivably enormous length, and in which the formation of one planet was in no sort connected with the formation of any other, could not have resulted in bringing any two planets to maturity at the same or nearly the same time, save by so improbable a combination of fortuitous circumstances as may justly be considered impossible. If we consider that the solar system was evolved by a combination of both processes (the most probable theory of the three in my opinion), we must still conclude that the epochs of the formation of the different planets were separated by time-intervals so enormous that the duration of life upon our earth is, by comparison, as a mere second compared with a thousand years.

Again, if we compare any two members of the solar system, except, perhaps Venus and the Earth, we cannot doubt that the duration of any given stage of the existence of one must be very different from that of the corresponding stage in the other. If we compare, for instance, Mars with the Earth, or the Earth with Jupiter, and still more, if we compare Mars with Jupiter, we cannot doubt that the smaller orb of each pair must pass much more rapidly through the different stages of its existence than the larger. The laws of physics assure us of this, apart from all evidence afforded by actual observation; but the results of observation confirm the theoretical conclusions deduced from physical laws. We cannot, indeed, study Mars in such sort as to ascertain his actual physical condition. We know that his surface is divided into lands and seas, and that he possesses an atmosphere; we know that the vapor of water is at times present in this atmosphere; we can see that snows gather over his polar regions in winter and diminish in summer: but we cannot certainly determine whether his oceans are like our own, or for the most part frozen; the whitish light which spreads at times over land or sea may be due to

clouds or to light snow-falls, for aught that observation shows us; the atmosphere may be as dense as our own or exceedingly rare; the polar regions of the planet may resemble the earth's polar regions, or may be whitened by snows relatively quite insignificant in quantity. In fine, so far as observation extends, the physical condition of Mars may closely resemble that of the earth, or be utterly dissimilar. But we have indirect observational means of determining the probable condition of a planet smaller than the earth, and presumably older—that is, at a later stage of its existence. For the moon is such a planet, and the telescope shows us that the moon in her decrepitude is oceanless, and is either wholly without atmosphere or possesses an atmosphere of exceeding tenuity. Hence we infer that Mars, which, as an exterior planet, and much smaller than the earth, is probably at a far later stage of its existence, has passed far on its way toward the same state of decrepitude as the moon. As to Jupiter, though he is so much farther from us than Mars, we have direct observational evidence, because of the vast scale on which all the processes in progress on his mighty globe are taking place. We see that his whole surface is enveloped in cloud-layers of enormous depth, and undergoing changes which imply an intense activity (or, in other words, an intense heat) throughout his whole mass. We recognize in the planet's appearance the signs of as near an approach to the conditions of the earth when as yet the greater part of her mass was vaporous, as is consistent with the vast difference necessarily existing between two orbs containing such unequal quantities of matter.

Mars, on the one hand, differs from the earth in being a far older planet—*probably*, as respects the actual time which has elapsed since the planet was formed, and *certainly* as respects the stage of its career which it has now reached. Jupiter, on the other hand, differs from the earth in

being a far younger planet—not in years perhaps, but in condition. As to the actual age of Jupiter we cannot form so probable an opinion as in the case of Mars. Mars being an exterior planet, must have *begun* to be formed long before the earth and being a much smaller planet, was probably a shorter time in attaining its mature growth. On both accounts, therefore, he would be much older than the earth in years; while, as we have seen, his relative smallness would cause the successive stages of his career subsequent to his existence as an independent and mature planet to be much shorter. Jupiter, being exterior to Mars, presumably began to be formed millions of centuries before that planet, but his bulk and mass so enormously exceed those of Mars, that his growth must have required a far longer time; so that it is not at all certain that even in point of years Jupiter (dating from his maturity) may not be the youngest member of the solar system. But even if not, it is practically certain that, as regards development, Jupiter is far younger than any member of the solar system, save perhaps his brother-giant Saturn, whose greater antiquity and inferior mass (both suggesting a later stage of development) may have been counterbalanced by a comparative sluggishness of growth in the outer parts of the solar domain.

It is manifest from observed facts, in the case of Jupiter, that he is as yet far removed from the life-bearing stage of planetary existence, and theoretical considerations point to the same conclusion. In the case of Mars, theoretical considerations render it extremely probable that he has long since passed the life-bearing stage, and observed facts, though, they do not afford strong evidence in favor of this conclusion, suggest nothing which, rightly considered, is opposed to it. It is true that, as we have shown in former essays on this planet, Mars presents many features of resemblance to our earth. This

planet rotates in a period not differing much from our day; his year does not exceed ours so greatly as to suggest relations unpleasantly affecting living creatures; it has been shown that there are oceans on Mars, though it is not quite so clear that they are not for the most part frozen; he has an atmosphere, and the vapor of water is at times present in that atmosphere as in ours; clouds form there; snow falls, and perhaps rain from time to time; ice and snow gather at the poles in winter, and are partially melted in summer; the land surface must necessarily be uneven, seeing that the very existence of continents and oceans implies that once, at any rate, the globe of Mars was subjected to forces resembling those which have produced the irregularities of the earth's surface; glacial action must still be going on there, even if there is no rain-fall, and therefore no denuding action corresponding to that which results from the fall of rain on our terrestrial continents. But it is a mistake (and a mistake too commonly made) to suppose that the continuance of those natural processes which are advantageous to living creatures, implies the existence of such creatures. The assumption is that the beneficent processes of nature are never wasted according to our conceptions. Yet we see over and over again in nature not merely what resembles waste, what in fact is waste according to our ideas, but an enormous excess of wasted over utilized processes. The sun pours forth on all sides the supplies of light and heat which, where received as on our earth, sustain vegetable and animal life; but the portion received by our earth is less than the 2000 millionth, the portion received by all the planets less than the 230 millionth part, of the total force thus continually expended. And this is typical of nature's operations everywhere. The earth on which we live illustrates the truth as clearly as the sun. We are apt to say that it teems with life, forgetting

that the region occupied by living creatures of all orders is a mere shell, while the whole interior mass of the earth, far larger in volume, and undergoing far more active processes of change—teeming, in fact, with energy—contains no living creature, or at least can only be supposed to contain living creatures by imagining conditions of life utterly different from those we are familiar with.

The mere continuance, therefore, on Mars of processes which on the earth we associate with the existence of life, in reality proves nothing as to the continued existence of life on Mars. The surface of the moon, for example, must undergo disturbances, mighty throes, as the great wave of sun-distributed heat circles round her orb once in each lunation,—yet few suppose that there is life, or has been for untold ages, on the once teeming surface of our companion planet. The formation of Mars as a planet must so long have preceded that of our earth, his original heat must have been so much less, his small globe must have parted with such heat as it once had so much more rapidly, Mars lies so much farther from the sun than our earth does, his atmosphere is so much rarer, his supply of water (the temperature-conserving element) is relatively as well as absolutely so much smaller, that his surface must be utterly unfit to support life in the remotest degree resembling the forms of life known on earth (save, of course, those lower forms which from the outset we have left out of consideration). Yet at one time, a period infinitely remote according to our conceptions of time, the globe of Mars must have resembled our earth's in warmth, and in being disturbed by the internal forces which cause that continual remodeling of a planet's surface with which life must soon pass away. Again, in that remote period the sun himself was appreciably younger; for we must remember that although, measured by ordinary time-intervals, the sun seems to give forth an unvarying supply of heat day by day, a real

process of exhaustion is in progress *there* also. At one time there must have existed on Mars as near an approach to the present condition of our earth, or rather to her general condition during this life-supporting era of her existence, as is consistent with the difference in the surface gravity of the planets, and with other differences inherent as it were in their nature. Since Mars must also have passed through the fiery stage of planetary life, and through that intermediate period when, as it would seem, life springs spontaneously into being under the operation of natural laws not as yet understood by us, we cannot doubt that when his globe was thus fit for the support of life, life existed upon it. Thus for a season,—enormously long compared with our ordinary time-measures, but very short compared with the life-supporting era of our earth's career,—Mars was a world like our own, filled with various forms of life. Doubtless, these forms changed as the conditions around them changed, advancing or retrograding as the conditions were favorable or the reverse, perhaps developing into forms corresponding to the various races of men in possession of reasoning powers, but possibly only attaining to the lower attributes of consciousness when the development of life on Mars was at its highest, thenceforth passing by slow degrees into lower types as the old age of Mars approached, and finally perishing as cold and death seized the planet for their prey.

In the case of Jupiter, we are guided by observed facts to the conclusion that ages must elapse before life can be possible. Theory tells us that this mighty planet, exceeding the earth three hundred times in mass, and containing five-sevenths of the mass of the whole system of bodies traveling around the sun, must still retain a large portion of its original heat, even if we suppose its giant orb took no longer in fashioning than the small globe of our earth. Theory tells us, moreover, that so vast a globe

could not possibly have so small a density (less than one fourth the earth's) under the mighty compressing force of its own gravity, unless some still more potent cause were at work to resist that tremendous compression—and this force can be looked for nowhere but in the intense heat of the planet's whole mass. But observation shows us also that Jupiter is thus heated. For we see that the planet is surrounded by great cloud-belts such as our own sun would be incompetent to raise,—far more so the small sun which would be seen in the skies of Jupiter if already a firmament had been set "in the midst of the waters." We see that these belts undergo marvelous changes of shape and color, implying the action of exceeding energetic forces. We know from observation that the region in which the cloud-bands form is exceedingly deep, even if the innermost region to which the telescope penetrates is the true surface of the planet—while there is reason for doubting whether there may not be cloud-layer within cloud-layer, to a depth of many thousand miles,—or even whether the planet has any real surface at all. And, knowing from the study of the earth's crust that for long ages the whole mass of our globe was in a state of fiery heat, while a yet longer period preceded this when the earth's globe was vaporous, we infer from analogy that Jupiter is passing, though far more slowly, through stages of his existence corresponding with terrestrial eras long anterior to the appearance of life upon the scene.

We must, then, in the case of Jupiter, look to a far distant future for the period of the planet's existence as a life-sustainer. The intense heat of the planet must in course of time be gradually radiated away into space, until at length the time will come when life will be possible. Then, doubtless, will follow a period (far longer than the life-sustaining portion of the earth's existence) during which Jupiter will in his turn be the abode of life. It may be that before then

the sun will have lost so large a proportion of heat that life in Jupiter will be mainly sustained by the planet's inherent heat. But, more probably the changes in the sun's heat take place far more slowly than the changes in the condition of any planet, even the largest. Possibly, even, the epoch when Jupiter will be a fit abode for life, will be so remote that the sun's fires will have been recruited by the indrawing of the interior family of planets. For it must be remembered that the periods we have to deal with in considering the cooling of such an orb as Jupiter are so enormous, that not merely the ordinary time-measures, but even the vast periods dealt with by geologists must be insignificant by comparison. Yonder is Jupiter still enwrapped in clouds of vapor raised by his internal heat, still seething, as it were, in his primeval fires, though the earth has passed through all the first stages of her existence, and has even long since passed the time of her maturity as a life-sustaining globe. It is no mere fancy to say that all the eras of Jupiter's existence must be far longer than the corresponding terrestrial eras, since we actually see Jupiter in that early stage of his existence and know that the earth has passed through many stages toward the final eras of decay and death. It is, indeed impossible to form any opinion as to the probable condition of the sun or of the solar system when Jupiter shall become fit to support life, seeing that, for aught we know, far higher cycles than those measured by the planetary motions may be passed ere that time arrives. The sun may not be a solitary star but a member of a star-system, and before Jupiter has cooled down to the life-sustaining condition, the sun's relation to other suns of his own system may have altered materially, although no perceptible changes have occurred during the relatively minute period (a trifle of four thousand years or so) since astronomy began.

In considering the case of Mars. I

suggested the possibility that owing to the relative shortness of that planet's life-sustaining era, the development of the higher forms of life may have been less complete than on our earth thus far (still less than the development of those forms on the earth in the coming ages). We may well believe that during the long period of Jupiter's existence as a life-supporting planet, creatures far higher in the scale of being than any that have inhabited, or may hereafter inhabit, the earth, will be brought into existence. As the rule of nature on earth has been to advance from simple to more complex forms, from lower types to higher, so (following the argument from analogy) we must suppose the law of nature to be elsewhere. And time being a necessary element in any process of natural development, it follows that where nature is allowed a longer time to operate, higher forms, nobler types, will be developed. If this be so, then in Jupiter, the prince of planets, higher forms of animated conscious being will doubtless be developed than in any other planet. We need not, indeed, point out that the supposition on which this conclusion rests is merely speculative, and that now, when the laws of natural development have so recently begun to be recognized and are still so imperfectly known, the argument from analogy is (in this particular case) necessarily weak. Nevertheless, analogy points in the direction we have indicated, and it is well to look outward and onward in that direction, even though the objects within the view are too remote for us to perceive their real forms.

But, limiting our conclusions to those which may be justly inferred from known facts, let us inquire how the subject of life in other worlds presents itself when dealt with according to the relations above considered.

It is manifest at once that whether our new ideas respecting the present condition of Mars or Jupiter be correct or not, the general argument de-

ducible from the analogy of our own earth remains unaffected. If Mars and Jupiter be at this moment inhabited by living creatures, it can only be because these orbs happen to be passing through the life-supporting period of their existence. We have shown that there is strong reason for believing this not to be the case; but if it is the case, this can only be regarded as a strange chance. For we have learned from the study of our earth, that the life-supporting era of a planet is short compared with the duration of the planet's existence. It follows that any time selected at random in the history of a planet is far more likely to belong to one or other of the two lifeless eras, one preceding, the other following the life-supporting era, than to belong to this short era itself. And this present time is time selected at random with reference to any other orb in the universe than our own earth. We are so apt to measure all the operations of nature by our own conceptions of them, as well in space as in time, that as the solar system presents itself (even now) as the center of the universe, so this present time, the era of our own life, or of our nation's life, or of the life of man, or of the existence of organic beings on the earth, or (passing yet a grade higher) the era of our earth's existence as a planet, presents itself to us as the central era of *all* time. But what has been shown to be false with respect to space is equally false with respect to time. Men of old thought that the petty region in which they lived was the center of the universe. After this was shown to be false by Copernicus, Kepler, and Newton, men clung in turn to the conception that the solar system is central within the universe. The elder Herschel showed that this conception also is false. Even he, however, assigned to the sun a position whence the galaxy might be measured. But it begins to be recognized that this is not so. Nay, not only is the sun no suitable center whence to measure the stellar system,

but the stellar system is for us immeasurable. The galaxy has no center and no limits; or rather we may say of it what Blaise Pascal said of the universe of space—its center is everywhere and its circumference nowhere. The whole progress of modern science tends to show that we must similarly extend our estimate of time. In former ages each generation was apt to regard its own era as critical in the earth's history; that is, according to their ideas, in the history of the universe itself. Gradually men perceived that no generation of men, no nation, no group of nations, occupies a critical or central position in the history of even the human race upon earth, far less in the history of organic life. We may now pass a step higher, and, contemplating the infinity of time, admit that the whole duration of this earth's existence is but as a single pulsation in the mighty life of the universe. Nay, the duration of the solar system is scarcely more. Countless other such systems have passed through all their stages, and have died out, untold ages before the sun and his family began to be formed out of their mighty nebula; countless others will come into being after the life has departed from our system. Nor need we stop at solar systems, since within the infinite universe, without beginning and without end, not suns only but systems of suns, galaxies of such systems, to higher and higher orders endlessly, have long since passed through all the stages of their existence as systems, or have all those stages yet to pass through. In the presence of time-intervals thus seen to be at once infinitely great and infinitely little—infininitely great compared with the duration of our earth, infinitely little by comparison with the eternities amidst which they are lost—what reason can we have when viewing any orb in space from our little earth, for saying *now* is the time when that orb is, like our earth, the abode of life? Why should life on that orb synchronize with life on the earth? Are not,

on the contrary, the chances infinitely great against such a coincidence? If, as Helmholtz has well said, the duration of life on our earth is but the minutest "ripple in the infinite ocean of time," and the duration of life on any other planet of like minuteness, what reason can we have for supposing that those remote, minute, and no way associated waves of life must needs be abreast of each other on the infinite ocean whose surface they scarcely ripple?

But let us consider the consequences to which we are thus led. Apart from theoretical considerations or observed facts, it is antecedently improbable that any planet selected at random, whether planet of our own system, or planet attending on another sun than ours, is at this present time the abode of life. The degree of improbability corresponds to the proportion between the duration of life on a planet, and the duration of the planet's independent existence. We may compare this proportion to that existing between the average life-time of a man and the duration of the human race.

If one person were to select at random the period of a man's life, whether in historic, prehistoric, or future time, and another were to select an epoch equally at random, save only that it fell *somewhere* within the period of the duration of the human race, we know how exceedingly minute would be the probability that the epoch selected by the second person would fall within the period selected by the first. Correspondingly minute is the *a priori* probability that at this present epoch any planet selected at random is the abode of life. This is not a mere speculation, but an absolute certainty, if we admit as certain the fact, which few now question, that the period during which organic existence is possible on any planet is altogether minute compared with the duration of that planet's existence.

The same relation is probably true when we pass to higher systems.

Regarding the suns we call "the stars" as members of a sidereal system of unknown extent (one of innumerable systems of the same order), the chance that any sun selected at random is, like our own sun at the present time, attended by a planetary system in one member of which at least life exists, is exceedingly small, if, as is probable, the life-supporting era of a solar system's existence is very short compared with the independent existence of the system. If the disproportion is of the same order as in the case of a single planet, the probability is of the same order of minuteness. In other words, if we select any star at random, it is as unlikely that the system attending on that sun is at present in the life-bearing stage as a system, as it is that any planet selected at random is at present in the life-bearing stage as a planet. This conclusion, indeed, may be regarded as scarcely less certain than the former, seeing that we as little doubt the relative vastness of the periods of our sun's existence before and after his existence as a supporter of life, as we doubt the relative vastness of the periods before and after the life-supporting era of any given planet. There is, however, one element of doubt in the case of the star. The very fact of the star's existence as a steady source of light and heat implies that the star is in a stage resembling that through which our own sun is now passing. It may be, for instance, that the prior stages of solar life are indicated by some degree of nebulosity, and the later stages by irregular variations, or by such rapid dying out in brightness as has been observed in many stars. Yet a sun must be very nebulous indeed—that is, must be at a very early stage in its history—for astronomers to be able to detect its nebulosity; and, again, a sun must long have ceased to be a life-supporter before any signs of decadence measurable at our remote station, and with our insignificant available time-intervals for comparison, are manifested.

As to higher orders than systems of suns we cannot speculate, because we have no means of determining the nature of such orders. For instance, the arrangement and motions of the only system of suns we know of, the galaxy, are utterly unlike the arrangements and motions of the only system of planets we know of. Quite possibly systems of sun-systems are unlike either galaxies or solar systems in arrangement and motions. But if, by some wonderful extension of our perceptive powers, we could recognize the countless millions of systems of galaxies doubtless existing in infinite space, without, however, being able to ascertain whether the stage through which any one of those systems was passing corresponded to the stage through which our galaxy is at present passing, the probability of life existing anywhere within the limits of a galaxy so selected at random would be of the same order as the probability that life exists either in a planet taken at random, or in a solar system taken at random. For though the number of suns is enormously increased, and still more the number of subordinate orbs like planets (*in posse* or *in esse*), the magnitude of the time-intervals concerned is correspondingly increased. One chance out of a thousand is as good as a thousand chances out of a million, or as a million out of a thousand millions. Whether we turn our thoughts to planet, sun, or galaxy, the law of Nature (recognized as universal within the domain as yet examined), that the duration of life in the individual is indefinitely short compared with the duration of the type to which the individual belongs, assures us, or at least renders it highly probable, that in any member of any of these orders taken at random, *it is more probable that life is wanting than that life exists at this present time.* Nevertheless, it is at least as probable that *every member of every order—planet, sun, galaxy, and so onward to higher and higher orders endlessly—has been, is now, or will*

hereafter be, life-supporting "after its kind."

In what degree life-supporting worlds, or suns, or systems are at this or any other epoch surpassed in number by those which as yet fulfill no such functions or have long since ceased to fulfill them, it would only be possible to pronounce if we could determine the average degree in which the life-sustaining era of given orbs or systems is surpassed in length by the preceding and following stages. The life-sustaining orbs or systems may be surpassed many thousandfold or many millionfold in number by those as yet lifeless or long since dead, or the disproportion may be much less or much greater. As yet we only know that it must be very great indeed.

But at first sight the views here advanced may appear as repugnant to our ordinary ideas as Whewell's belief that perhaps our earth is the only inhabited orb in the universe. Millions of uninhabited worlds for each orb which sustains life! surely that implies incredible waste! If not waste of matter, since according to the theory every orb sustains life in its turn, yet still a fearful waste of time. To this it may be replied, first, that we must take facts as we find them. And secondly, whether space or matter or time or energy appear to be wasted, we must consider that, after all, space and matter and time and energy are necessarily infinite, so that the portion utilized (according to our conceptions) being a finite portion of the infinite is itself also infinite. Speaking, however, on the subject we are upon, if one only of each million of the orbs in the universe is inhabited, the number of inhabited orbs is nevertheless infinite. Moreover, it must be remembered that our knowledge is far too imperfect for us to be able to assert confidently that space, time, matter, and force, though not utilized according to our conceptions, are therefore necessarily wasted. To the ignorant savage, grain which is planted in a field

instead of being used for food, seems wasted, the wide field seems wasted, the time wasted during which the grain is growing and ripening into harvest; but wiser men know that what looks like waste is in reality economy. In like manner the sun's rays poured on all sides into space so that his circling family receives but the 230 millionth portion, seem, to our imperfect conceptions, almost wholly wasted; but, if our knowledge were increased, we should perhaps form a far different opinion. So it may well be with the questions which perplex us when we contemplate the short duration of the life-sustaining condition of each world and sun and galaxy compared with the whole existence of these several orders. The arrangement which seems so wasteful of space and time and matter and force, may in reality involve the most perfect possible use and employment of every portion of space, every instant of time, every particle of matter, every form of force.

EARTHQUAKES.

It is related in the *Timæus* of Plato that the ancient Egyptians held the world to be liable to occasional widely-extended catastrophes, by which the gods checked the evil propensities of men, and cleansed the earth from guilt. Conflagrations, deluges and earthquakes were the instruments of the wrath of the offended gods. After each catastrophe mankind were innocent and happy, but from this state of virtue they gradually fell away, until their accumulated offences called for new judgments. Then the gods took counsel together, and unable to bear with the multiplied iniquities of the human race, swept them from the earth in some great cataclysm, or sent a devouring flame to consume them, or shook the solid earth until hills and mountains fell upon and

crushed the inhabitants of the whole world.

One can understand how the confused records of great catastrophes, in which all, or nearly all, the inhabitants of wide districts were destroyed, led in the course of time to the formation of such views as Plato has described. And, indeed, it is not in one nation alone that we find theories of this sort prevalent. In the *Institute of Menu* the Hindoos are taught that at the end of each of those cycles of ages which are termed the "days of Brahma," all forms of life are destroyed from the earth by a great conflagration, followed by a deluge which inundates heaven itself. The mythical legends of the Chinese refer to similar views, which appear also in the Babylonian and Persian cosmogonies. The Chaldeans taught that when the planets are all conjoined in Capricorn the earth will be overwhelmed by a flood, and that when a conjunction of this sort takes place in Cancer the earth will be destroyed by fire.

In the present age when the network of telegraphy brings all parts of the earth into close intercommunication, we are not likely to trace, even in the most widespread disasters, the approaching destruction of our globe. The same day which brings the intelligence of some desolating catastrophe brings evidence also that the devastation is but local. We are seldom informed of simultaneous, or nearly simultaneous, events happening in widely-separated regions of the earth's surface. Accordingly, we are seldom led to dread the occurrence of any widely-devastating series of catastrophes.

We have heard a great deal lately of certain speculations—recently ventilated by an American philosopher—which threaten the earth with complete annihilation. According to these views there is one great danger to which we are at all times liable—the risk, namely, that some large volcanic vent should be formed beneath the bosom of ocean. Through

this vent the sea would rush into the interior of the earth, and being forthwith converted into steam by the intense subterranean heat, would rend the massive shell on which we live into a thousand fragments.

Whether it is possible or not that such an event as this should take place, I shall not here stay to inquire. Let it suffice that the risk—if there be any—is no greater now than it has been any time during thousands of past years.

But certainly, if there is any source from which the inhabitants of the earth may reasonably dread the occurrences of widely devastating catastrophes, it is from earthquakes. It is related that for full six months after the great earthquake of Lisbon, Dr. Johnson refused to believe in the occurrence of so terrible a catastrophe. "He spoke half jestingly," Macaulay thought—it is not easy to see on what grounds. To us it seems far more probable that Johnson heard with natural wonder and awe of the destructive effects of this fearful convulsion; and that for awhile he could scarcely believe that the extent of the disaster had not been exaggerated. It would be well if, indeed, the powers of earthquakes were less tremendous than they have been repeatedly shown to be. "There is," says Humboldt, "no other outward manifestation of force known to us—the murderous inventions of our own race included—through which, in the brief period of a few seconds or minutes, a larger number of human beings have been destroyed than by earthquakes." Lightning and storm, war and plague, are but weak and inefficient agents of destruction in comparison with the earth's internal forces.

And as earthquakes surpass all other phenomena as agents of sudden destruction, so the impression which they produce on those who for the first time experience their effects is peculiarly and indescribably awful. Men of reputed courage speak of a feeling of "intolerable dread" produced by the shocks of an earthquake,

"even when unaccompanied by subterranean noises." The impression is not that of simple fear but a feeling of absolute pain. The reason seems for awhile to have lost the power of separating real from imaginary causes of terror. The lower animals, also, are thrown into a state of terror and distress. "Swine and dogs," says Humboldt, "are particularly affected by the phenomenon of earthquakes." And he adds that "the very crocodiles of the Orinoco, otherwise as dumb as our little lizards, leave the shaken bed of the stream and run bellowing into the woods."

Humboldt's explanation of the peculiar sensations of alarm and awe produced by an earthquake upon those who for the first time experience the effects of the phenomenon is in all probability the correct one. "The impression here is not," he says, "the consequence of the recollection of destructive catastrophes presented to our imagination by narratives of historical events; what seizes us so wonderfully is the disabuse of that innate faith in the fixity of the solid and sure-set foundations of the earth. From early childhood we are habituated to the contrast between the mobile element water and the immobility of the soil on which we stand. All the evidences of our senses have confirmed this belief. But when suddenly the ground begins to rock beneath us, the feeling of an unknown mysterious power in nature coming into operation and shaking the solid globe arises in the mind. The illusion of the whole of our earlier life is annihilated in an instant."

Use habituates the mind to the shocks of earthquake. Humboldt found himself able after awhile to give a close and philosophic scrutiny to the circumstances attending the phenomenon which had at first impressed him so startlingly. And he tells us that the inhabitants of Peru think scarcely more of a moderate shock of earthquake than is thought of a hail-storm in the temperate zone.

Yet the annals of earthquakes are sufficient to give rise to a feeling of dread, founded, not merely on the novelty of the event, but on a knowledge of the powers of the earth's internal heavings. The narratives of some of the great earthquakes afford fearful evidence on this point.

In the first shock of the great earthquake of Lisbon (November, 1755) the city was shaken to its foundations. The houses were swung to and fro so violently that the upper stories fell at once, causing a terrible loss of life. Thousands rushed to the great square in front of St. Paul's Church, to escape the reach of the tottering ruins. It was the festival of All Saints, and all the churches had been crowded with worshippers. But when the terrified inhabitants reached the square, they found that the great church of St. Paul's was already in ruins, and the immense multitude which had thronged its sacred precincts were involved in its destruction. Such of the congregations of the different churches as had escaped rushed to the banks of the Tagus for safety. There were to be seen priests in their sacerdotal vestments, and an immense crowd of people of all ranks and ages, praying to Heaven for mercy. As they prayed there came the second shock, scarcely less terrible than the first. The church on the top of St. Catherine's Hill was rocked to and fro till it fell, crushing in its fall a great multitude which had sought that height for safety.

But a far more terrible catastrophe was at hand. As the banks of the river sounded with the *Miserere* of the terrified supplicants who had crowded thither for safety, there was seen to pass over the wide expanse of the stream (here four miles broad) a strange heaving swell, though no wind stirred the air. The waters seemed to be drawn away to meet a vast wave which was now first observed to be bearing down upon the devoted crowd. They strove to fly, but the wave swept too rapidly onwards. The whole multitude was overwhelmed

in a moment. A magnificent quay, lately built at a great expense, was engulfed with all who had crowded on it for refuge. Numberless vessels, also, which were anchored on the river and were now full of terrified people—seeking on an unstable element the security which the solid earth denied them—were sucked down by the tremendous wave, and not a trace of them was ever afterwards seen.

A third shock followed, and again the river was swept by a gigantic wave. So violently was the river moved that vessels which had been riding at anchor in deep water were flung upon the dry ground. Other shocks and other inroads of the river-water followed, each working fresh destruction, insomuch that many began to believe that "the city of Lisbon was doomed to be entirely swept away from the face of the earth."

It would be out of place to describe here at length how fire and pestilence came successively to complete the desolation begun by the earthquake's ravages. The terrible story has been narrated elsewhere. But what remains to be mentioned gives us startling evidence of the terrible energy of the earth's subterranean forces:—

The mountains Arrabida, Estrella, Julio, Marvan, and Cintra, some of the largest in Portugal, were shaken from their very foundations, they opened at their summits, and huge masses were flung into the neighboring valleys. Flames and smoke were emitted from the openings. But much farther away the effects of the great convulsions were experienced. It has been computed, says Humboldt, that a portion of the earth's surface four times greater than the whole extent of Europe was simultaneously shaken. On the coast of Sweden and on the shores of the Baltic, far away across the Atlantic to the Antigua Islands, at Barbadoes and Martinique, and still further off in the great Canadian lakes, the movement was sensibly felt. A vast wave of inky blackness swept over the West Indian seas, rising twenty feet above the level of the highest tides. In Algeria the

earth was as violently shaken as in Portugal, and eight leagues from Morocco a village with 8000 inhabitants was swallowed up.

The shocks felt at sea were so violent that the captains who experienced them thought their ships had struck the solid ground. A ship 120 miles to the west of St. Vincent was so violently shaken that the men were thrown half a yard perpendicularly upwards from the deck. Lakes and rivers in England were strangely agitated. The water in Loch Lomond suddenly rose against the banks without apparent cause, and then as suddenly subsided—the vibration of the earth's surface having traveled from Lisbon to Scotland at the rate of twenty miles a minute!

It has been calculated that in Lisbon alone 60,000 persons perished within the brief space of six minutes. But there have been other earthquakes in which even this terrible destruction of life has been surpassed. In 1603, 100,000 persons fell victims to the great Sicilian earthquake, and upwards of 300,000 persons are supposed to have perished in the great earthquakes which desolated Antioch in the sixth and seventh centuries. It has been estimated that within the last 4,000 years five or six millions of human beings have perished through the effects of earthquakes.

It is related that in the great earthquake of 1747 all the inhabitants of the town of Callao were destroyed, save one. The man who escaped, standing on a fort which overlooked the harbor, saw the sea retire to a distance and then return like a vast mountain in height. "He heard a cry of *Miserere* rise from all parts of the city," and in a moment all was silent—where the town had once flourished there was a wide sea. But the same wave which overwhelmed the town drove past him a small boat, into which he flung himself, and so was saved.*

* It must be remarked, however, that Sir Charles Lyell estimates the number of the saved at 200, "of whom twenty-two were

OUR DUAL BRAIN.

In a recent lecture at the Royal Institution, Mr. Horsley offered evidence (which seems to me not very strong) against the theory of the duality of the mind. A person who, being already fairly well able to draw with either hand separately, attempts to draw simultaneously two different forms, however simple, with both hands, is tolerably sure to fail. Mr. Horsley appears to think that failure always results. When the effort is made, he says, "There is a very definite sensation in the mind of a conflict that is going on in the cortex of the brain. The idea of the circle alternates with that of the triangle, and the result of this confusion in the intellectual and sensorial portions of the brain is that both motor areas, though remembering, as it were, the determination of the experimenter to draw distinct figures, produce a like confused effect, namely, a circular triangle and a triangular circle."

Mr. Horsley adds that if the drawing is commenced immediately at the sound of a signal (as should always be done in such experiments), it will be found that the triangle predominates, while, on the other hand, if the two figures are not commenced simultaneously, the one last begun will appear most distinctly in the fused result, in fact, will very markedly predominate. He reasons upon this as follows:—"The idea of a triangle and circle having been presented to the intellect of the sensory centers, the voluntary effort to reproduce them is determined upon: now if we had a dual mind, and if each hemisphere was capable of acting *per se*, then we should have each intellectual area, sending a message to its own motor area, with the result that the two figures would be *distinct and correct*, not fused."

To this experimental evidence and to its interpretation two different an-

saved on a small fragment of the fort of Vera Cruz, which remained as the only memorial of the town after this dreadful inundation."

swers can be given. In the first place, it does not always happen that the attempt to draw two different objects simultaneously fails in the alleged manner. Setting on one side as probably exaggerated the story that Sir Edwin Landseer drew on one occasion a deer's head with one hand, while he was drawing a landscape with the other, I may cite from my own experience a case which entirely invalidates Mr. Horsley's evidence. My friend, Professor Edwin Morse, of Salem, Mass., could draw simultaneously, and that, too, before an audience, two different objects with either hand. Or, he would draw an object with one hand, and at the same time write the names of the parts of the object with the other. With practice much skill may be acquired in this ambidextrous work.

Here is a simple experiment to show the effect of practice. Try for the first time to write a word of so many letters while you spell aloud, letter by letter, another word containing the same number of letters. At first you are almost sure (perhaps quite sure) to fail. But after a few trials what had seemed impossible becomes feasible, and presently it becomes quite easy.

Then, even if it were proved that we cannot do two different things at once (apart from cases where either or both is done automatically), this would no more prove that the brain is not dual than our inability to use the two eyes simultaneously to do different work would prove that we have not dual vision.

As a matter of fact we are able to prove very easily that vision is double, by alternately closing and opening either eye. We cannot make any corresponding experiment with the brain. We do not know even that, when we are trying to do simultaneously two different things the two different sides of the brain are called into action. We have positively no means of determining whether one side, or the other side, or both sides of the brain shall be used, or of knowing whether

they are used. Even in those cases where marked alternations of character, accompanied or preceded by marked cerebral phenomena, show unmistakably that two different parts of the brain may alternate in the regulation of actions and even of character, the person thus dually minded and characterized is perfectly powerless as to the particular mental side of him which shall come uppermost (or act alone). He often does not even know that he is passing or has passed from one state to the other.

Since, however, we are absolutely certain that each eye does its work, while we are absolutely unable to make them work separately yet simultaneously—to make one eye work at long range, for example, and the other at short range, the argument used by Mr. Horsley in regard to the brain is altogether without force.

If any one could make his two eyes work separately, I should be the one to do it, for my left eye is permanently limited to work at short focal distances, while the right eye has the usual range. Yet, not only am I powerless to make my two eyes work separately and simultaneously, but I am very seldom conscious of the fact that the left eye is in reality presenting to the brain (so to speak) a very different picture from that which is presented by the right eye.

I remained unconscious of the difference between the focal lengths of my two eyes, marked though it is (inasmuch, that for ordinary distances my left eye is almost blind), till I was about twenty; at least I know it must have been more than twenty-six years ago that I detected the peculiarity. I was in church one Sunday evening, listening or not listening to a rather dreary sermon, in which a person whom I had reason for regarding little was enjoining duties which I had long learned to regard a great deal; and being naturally inattentive to him, I attended to other things. Now, there were in front of me two bright lights, and I noticed to the right of them two blurred lights, looking as large as

the moon, where assuredly no lights were. I looked at another group of lights, three of them—and lo, to the right of them also, a group of three, similarly arranged, blurred lights. I closed my left eye, and could see only the bright lights; I closed my right eye and could see only the blurred lights. That was all my left eye could do in the way of showing those lights.

Thus, for the first time in my life, I learned that so far as distant objects were concerned I was almost blind of one eye. But I soon found that my left eye was by no means blind for near objects; on the contrary, it was and is very keen for them. Yet I cannot make my eyes, different though they thus are, work separately, except in an imperfect sort of way, akin to the way in which, in Mr. Horsley's experiment, one hand makes a circular triangle while the other makes a triangular circle. I am well assured my vision is double, as all men are; nay, in my case vision is even of two kinds with the two eyes: yet I have precisely the sort of evidence respecting my two eyes which Mr. Horsley regards as evidence of unity.

Mr. Horsley cites a singular illustration of the duality of the mind, of which, however, he endeavors to dispose. The case is so remarkable, and, just now when all sorts of foolish superstitions are as rife as ever, so instructive, that I give its details here pretty nearly in full, as recorded by Prof. Ball, of Paris. He tells us that a young man, a patient of his, one morning heard himself addressed by name, and yet could see no one. He replied to this invisible, and in reality imaginary, interlocutor; and a conversation followed, in the course of which the ghostly visitor informed him that he—the visitor—rejoiced in the name of Gabbage. After this, he was often favored with visits from M. Gabbage. Unfortunately, the suggestions of M. Gabbage were generally open to objection. At one time M. Gabbage urged the patient to give an overdose of chlorodyne to a friend's

child, at another, his idea was that the young man would do well to jump out of a second-floor window.

Prof. Ball thought—naturally enough—that the young man needed watching. It was presently found that the patient was suffering from one-sided hallucination; that is to say, a strong but false impression, affecting one side only of the brain, appeared to come from some external cause, the healthy side rejecting the evidence as false. (Without doubt many superstitions, many false religious beliefs, and also many crimes, have been suggested in this way.)

Mr. Horsley finds nothing in this or similar cases to suggest the duality of the brain; but I take it that the evidence is precisely analogous to that which showed me not only the duality but the diversity of my own visual powers. Usually, of course, the two sides of the brain would give the same sort of evidence respecting external objects; just as—usually—the two eyes do: but in certain cases one side of the brain is defective or peculiar in some way or other, and so gives evidence which the better and sounder side rejects; just as in my case one eye gave evidence of large diffuse lights where I knew, from the sound evidence of my better eye, that small bright flames were burning. The analogy seems as perfect as it can be; and the necessary conclusion is that the brain's action, in ordinary cases, is as essentially dual as the action of the eyes in vision.

A NEW STAR IN A STAR CLOUD.

THE discovery of a new star in the midst of the Great Nebula in Andromeda must be regarded as one of the most remarkable astronomical events of the age. It is true that great changes have ere now been recognized in stars lying within nebulous clouds. The star Eta Argûs for example, which lies in the midst of that wonderful

mass of luminous gas called the Key-hole Nebula in Argo, has changed so marvelously in luster since it was first catalogued as a fourth magnitude star as to present a case corresponding so far as the star is concerned with the sudden appearance of the new star in the Andromeda Nebula. For Eta Argûs sank from the fourth magnitude to the sixth, then rose rapidly to the second, and after remaining for some time at that magnitude increased almost suddenly in splendor until it rivaled Canopus and was surpassed only by Sirius. Undoubtedly to an observer set at such a distance that Eta Argûs when thus resplendent would have appeared only as an eighth magnitude star, like the new star in Andromeda, Eta with its present light of a sixth magnitude star would be altogether invisible. So that viewed from that imagined distance Eta Argûs when it rose to its greatest splendor would have appeared as a new star, and as it faded out of view would come to be regarded as having been but a temporary star.

Again, the star which appeared in Cygnus in 1876 must be regarded as a star which had suddenly shone out in a nebula, although no nebula had been known where the star appeared. For when that star had disappeared there still remained a blue planetary nebula in the place which the star had occupied. And this nebula was and is so faint that one can readily understand it having escaped notice before. No one, I imagine, can doubt that the nebula which is seen there now existed there before the star appeared.

The stars in the great Fish-mouth Nebula in Orion exhibit also a certain degree of variability, which, though not so striking as the appearance of "new stars," is in reality a phenomenon of the same sort. For every so-called "new star" may be regarded as a variable of an unusually irregular kind.

But in all these cases the star which shone with variable luster, or which for a time appeared as a new star, has

been in the midst of a gaseous nebula. The great nebula in Andromeda has always been regarded as a stellar nebula, although it has never been resolved into stars. Under spectroscopic examination it presents the rainbow-tinted streak crossed by absorption lines which indicates the existence of glowing solid or liquid or highly compressed vaporous matter shining through absorptive vapors. I remember Dr. Huggins describing the spectrum of this object to me, during a visit which I paid to his observatory in 1866; and he then said that the spectrum differed only from that of a star, in being rather sharply cut off at the red end, as if through the action of vaporous envelopes more powerfully absorptive of red light than the vapors around our sun and most other stars.

In a rather carelessly-written paragraph in the *Times* of Saturday last,* manifestly by a person not well acquainted with astronomical facts, the new star is spoken of as if it gave support to Laplace's nebular theory. In reality the appearance of the star is most strongly opposed to that theory, for the simple reason that all the processes involved in Laplace's nebular theory are slowly-acting ones, while the appearance of a new star where a star had not before been visible, signifies events of a catastrophic nature. Moreover the theory of Laplace, in the form in which it was presented, cannot be maintained by any one acquainted with the laws of physics. A vast disc of gaseous matter, extending beyond the orbit of Neptune, but containing no more matter than there is in the whole solar system would not have the slightest cohesion among its various parts. To conceive of it as rotating like a single mass is to imagine the impossible. One may say indeed of Laplace's nebular hypothesis—which was very properly regarded by himself as but a guess—that astronomers suppose it physically possible and physicists suppose it astro-

* This article was first published Sept. 11, 1885.

nominally possible: but no one who combines a knowledge of both astronomy and physics can accept it in the wide generality of its original form.

What the new star really does throw light upon, and light of a very clear and unmistakable sort, is not the theory of the solar system, but the theory of the stellar system—that grand gathering of stars, star-clusters, star-clouds, and star-streams, which we call the galaxy.

If there was one member of the family of nebulae which was still supposed to remain possibly an external galaxy, after all the evidence which had been collected to show that nebulae belong to our own galaxy, it was the great nebula in Andromeda,—the transcendently beautiful queen of the nebulae as the old astronomers enthusiastically called it. Mr. Herbert Spencer observed as far back as 1859 or 1860, in his fine essays on the Nebular Hypothesis in the *Westminster Review*, that the theory according to which numbers of the resolvable nebulae are external star systems is absolutely untenable. He pointed to this fatal objection, that Sir William Herschel's most powerful telescopes failed to resolve the remoter portions even of our own galaxy. How then could they—or indeed in many cases much weaker telescopes—by any possibility resolve galaxies lying far beyond its limits. A resolvable nebula which has an apparent greatest diameter of a quarter of a degree of arc, would be a very large one indeed; yet even one of that apparent size must lie at a distance exceeding its own diameter about 230 times, and exceeding therefore (supposing that nebula a galaxy like our own in size) the distance of the outskirts of our galaxy from us, more than 450 times. This would correspond to a diminution in the lustre of individual stars more than 200,000 times. Now Herschel had to withdraw from the survey of the remotest parts of our galaxy, or at any rate the least resolvable parts (for my own interpretation of their irresolvability does not assume great distance

as a necessary point), satisfied, as he said, that those depths are unfathomable. Irresolvable nebosity foiled his most powerful telescopes, within the limits of our own stellar domain. How preposterous, then, when considered a little, the belief that the same telescope which failed to resolve the outskirts of our own galaxy, can bring into view individual stars having less than the 200,000th part of the light of those remoter suns of our stellar system.

Mr. Herbert Spencer pointed out another fatal objection, in Sir W. Herschel's own account of the arrangement of the stellar and nebular groupings. For Herschel said that whenever he found his star gauges running poor, he would call out to his elder sister, Miss Caroline Herschel, who acted as his assistant, "Prepare to write, nebulae are about to appear." This peculiarity of arrangement by which nebulae fit in where stars are sparsely strewn, and *vice versa*, must be regarded as proof positive of the association between nebulae and stars. Nebulae must belong, then, to our galaxy.

I myself collected some forty pieces of evidence as to the structure of our galaxy, by which, as I believe, the old-fashioned theory (in favor of which not a single direct argument has ever been adduced) was shown to be absolutely untenable. I may remark in passing that I propose to publish in the first monthly number of the new series of *Knowledge* a letter which I addressed to Sir John Herschel in 1870, wherein the greater number of the arguments on which the objections to the old theory are based were briefly indicated. In the second number of that series I propose to publish his singularly interesting reply to that communication. I feel that the time has come to make known precisely how that great astronomer viewed the questionings then being addressed to the theory with which—not quite correctly—his own name and his father's have been associated.

But while Mr. Spencer's objections

(of themselves) sufficed to demonstrate the utterly untenable nature of the theory of galaxies of stars external to our own stellar system; and my own more labored gathering of evidence on the subject should have left no doubt, even in the minds of those least ready to recognize the force of reasoning in such matters, the great nebula in Andromeda was in some degree outside our evidence.

The Andromeda nebula is not gaseous but manifestly stellar; yet it has not been resolved into stars. Nor had it been possible to show how far the nebula was from resolvability. Some, using very powerful telescopes on the nebula, supposed they had come very near to resolving it into discrete stars; but they could not feel sure on such a point. For anything yet shown, telescopes a thousand times more powerful than the great Rosse telescope (imagined for the moment as perfect in defining power) might have failed to resolve the Andromeda nebula into stars.

Therefore Mr. Herbert Spencer's first objection, fatal against all resolved or partly-resolvable nebulae, had no *fatal* force (it had considerable force however) against the Andromeda nebula. Of course the other objection had no force at all if this nebula is once regarded as exceptional. Among all my own objections against the theory of external galaxies, few had much force against the Queen of the Nebulae, and certainly none were absolutely decisive against this great agglomeration of unquestionably stellar material being an external galaxy.

Now, however, it need hardly be said, the question is disposed of. A star-cloud cannot possibly be an external galaxy resembling our sun if there can appear in it suddenly a star where no star had before been seen. Were the Andromeda nebula such a galaxy the change which has recently taken place in it (or to speak more precisely, the change of which the light-brought news has recently reached us) would correspond to such a change in our galaxy as would alter

its whole character. A star millions of times larger than any orb in our galaxy would have to be present in it—to begin with—and then after being so dull as to give no more light than an ordinary sun—would have to blaze out suddenly with hundreds of thousands of times as much light even as the splendid Sirius pours forth, to produce such a change of aspect in our galaxy, supposed to be seen from the distance of the Andromeda nebula, as has actually taken place in that star-cloud.

The theory that the star-clouds, or any of them, are external galaxies has received a death-blow. This is not saying it was not dead before. The blow may be such a one as Falstaff gave the dead Percy: but no one can mistake its force. With this new wound the theory has no longer even the semblance of life, and will possibly disappear ere long from those cemeteries for defunct theories, the text-books!

MONSTER SEA-SERPENTS.

I have been gratified and rather amused to find a short article, which I contributed more than a year since to *The Newcastle Weekly Chronicle* on the subject of a marine monster seen near Panama, appearing in the very valuable report of Professor Spencer F. Baird, United States Commissioner of Fish and Fisheries. A genial article in the *New York Tribune* for January 4, 1885, presents my recognition of this marine monster and defence of the sea-serpent as a tardy admission on the part of science that there may be more things in sea and land than had been dreamt of in an unphilosophical philosophy. But so far as I am concerned there has been no "ridicule, followed by denial, then by doubt, and lastly by partial acceptance." I have always been a believer in the sea-serpent of Capt. McQuhae, of the *Dadalus*. I was a very young lad when his report of the

strange encounter first appeared; but it seemed to me then, and it seems to me still, that the sea captain had much the best of the discussion with the representatives of science. There was that cautious naturalist and palæontologist, Richard Owen, so anxious to disprove the sea-serpent that he pictured to himself the captain and officers of a British frigate frightened out of their wits, and out of one at least of their senses, by the sight of a sea-elephant (as he tried to make out) rather far away from its native abode, and urging its course as fast as possible homeward. Captain McQuhae, in a report to the Admiralty, says that he and his officers saw a long-necked sea monster traveling swiftly in the teeth of a ten-knot breeze on the surface of the sea, so quickly that he could see the waves frothing against the creature's chest. It passed so near that he could have distinctly seen the features of a man at the distance. He and his officers had a good view of the creature. (For a wonder, they were not possessed by the customary desire to shoot it, a desire which speaks as honorably of the human race as the saying of the North Country miner immortalized by Leech, who, seeing a stranger, thought it due welcome to "'eave 'arf a brick at un.") They rejected the sea-elephant with derision, as entirely inconsistent with what they had clearly seen; while the idea of their being frightened—well, Americans in old times tackled a few of our British frigates with greater or less success, but they did not find our seamen quite so timorous as to be likely to tremble in their shoes at the sight even of an extra large sea-elephant. Yet Prof. Owen persisted in his belief that the *Dædalus* sea-serpent story was not worthier of credence than a story about ghosts. That particular ghost he thought he had laid.

Since then all sorts of explanations of sea-serpent stories have been advanced. Because one captain has mistaken a lot of floating sea-wreck half a mile away for a sea monster,

therefore the story of a sea creature seen swiftly advancing against wind and sea, at a distance of less than 200 yards, meant nothing more than misunderstood sea-weed. Another mistakes a flight of birds in the distance or a shoal of porpoises, or even a range of hills beyond the horizon, for some sea-serpentine monster, and forthwith other accounts, however manifestly inconsistent with such explanations, are regarded as explained away. Then, worst of all, some idiot invents a sea-serpent to beguile his time and find occupation for his shallow pate, and so soon as the story is shown to be only a story, men of sense and standing, as incapable of the idiocy of inventing sea-monsters as I am of inventing a planet, are supposed to have amused their leisure by sending grave reports of non-existent sea-monsters to men under whom they (the seamen, not the sea-monsters) held office, or by taking oath before magistrates that they had seen sea creatures which they had invented, and by parallel absurdities.

All this has been done in the case of the sea-serpent, as something akin to it was long since done in the case of the cameleopard, and later in the case of the gorilla. Much earlier Herodotus had been called the Father of Lies instead of the Father of History, because of wonders related by him which have since been shown to be facts. The poor (in intellect and veracity) are always with us; and they can never admit that anything exists outside what they know, or understand how any traveler in little known regions can fail to lie lustily when he comes home again. Among the creatures thus specially ridiculed the monster earth-worm described by Rapp, some forty years ago, was specially ridiculed, and those who believed in it, or declined utterly to reject it, were sneered at just as those who recognize the reasonableness of the sea-serpent are laughed at now. Rapp said he had seen in South Africa a monstrous earth-worm, sey-

eral feet in length. One of these he described as 6 ft. 2 in. long, and proportionately thick. The measurement was regarded as not worthier of credence than Gulliver's precise statements of the height of Lilliputian and Brobdingnagian animals. The absurdity and impossibility of the thing was abundantly proved. A worm of the ordinary kind averages, let us say, 6 in. in length. Here, if this lying traveler was to be believed, was an animal more than twelve times as long, and therefore some 1,800 times as large. Now, the ordinary boa-constrictor is about eighteen feet long. Multiply his length by twelve, and we get a serpent of 216 feet in length. *Credat judeus*, &c. Rapp was demonstrably a vendor of lies—so, at least, said the young buccaneers of the press. Well, there is now in the Zoological Gardens in London a living specimen of the species described by Rapp. It is not one of the largest. Indeed, these creatures are hard to catch and keep alive; and probably the biggest are the most difficult to secure. They are described as "fairly abundant in the neighborhood of Port Elizabeth and other parts of Cape Colony," but they keep out of sight unless heavy rains drive them out of their holes, when hundreds of them can be seen crawling about, but they usually perish soon after thus visiting the surface. The specimen at the Zoological Gardens is about five feet long, however, so that it is quite a good-sized worm. Here, then, is a case where a creature, the description of which excited as much ridicule as that of the sea-serpent, is found not only to exist in large numbers, but to be amenable to the customary treatment extended by our kindly race to the inferior races: we have captured a specimen and keep it on show.

Yet those who formerly laughed at the earth-worm laugh now about the fancied sea-serpent. They laugh so consumedly, and make so much noise over it—the laughter of such folk being "as the crackling of thorns

under a pot"—that, as my friend Mr. W. Mattieu Williams points out, and as I can confirm, "much valuable evidence concerning the sea-serpent is suppressed by the flippant sneering of the class of writers who require no other qualification than ignorance of the subject on which they write. Scores, perhaps hundreds, of trust-worthy mariners of all ranks, in both the naval and mercantile services, have seen what they believe to be such a creature, but they refuse to publish any account of their observations, knowing they will be insulted, and publicly gibbeted as fools and liars if they do."

The foolish laughed in the same way over the kraken, as you point out, and the monster they rejected as impossible has been killed and measured. Whether the sea-serpent, or any creature whose prey is chiefly sought at a considerable distance below the surface, will ever be captured or killed is very doubtful. But their existence ought never to have been regarded as doubtful after the evidence gathered in Massachusetts in 1817, and the report of the captain of the *Dædalus*. There are probably several varieties of sea-creatures which look like serpents, and among these varieties some may quite probably be really serpentine. But some of the supposed sea-serpents must have really propelled themselves otherwise than as serpentine sea-creatures do. For they moved rapidly along the surface without perceptible undulations, and nothing but concealed paddles could have urged them on in this way. In my article on "Strange Sea-Creatures," which appeared eleven years ago in *The Gentleman's Magazine*, several singular inhabitants of the sea—and in particular a monstrous skate seen in the East Indies—are described, and evidence given to show that even among comparatively familiar species new varieties are from time to time being discovered. Thus, though no sea-serpent so large as the Sea Orm or Sea Worm, described by Bishop

Pontoppidan as six hundred feet in length, have as yet been seen, it does not follow that none such exist, albeit, I cannot doubt that the good Bishop's accounts are very largely exaggerated. He was not quite so foolish as the modern critic, who, though he perhaps has never left his native town, undertakes to contradict men who describe what they have seen. But I fear he erred as far in the opposite direction. The boa-constrictor and the condor have been described in such terms by comparatively modern travelers (as Humboldt has shown) as would suggest creatures akin to the serpent which went for Sindbad, and the roc which also adorns Sindbad's narrative and appears elsewhere in tales of the East. But to exaggerate is one thing, to invent is another. The man who is foolish enough to lie about his traveling experiences is not capable of inventing a new animal worth five minutes' consideration; but, on the other hand, the man who, being sensible, is honest and truthful, is yet very apt to err in the way of unintentional exaggeration. I think poor Capt. Drevar's narrative of a long-necked sea monster which captured in its folds and took down a sperm whale was a little exaggerated, though he and his mates swore to the truth of the story before a magistrate, and he himself was most unfairly punished by his employers for telling what he had seen—he was, in fact, ruined for life. ("I would not tell about it," said an old salt to Capt. Drevar, "if I saw five hundred sea-serpents.") But I no more believed that these men would have invented such an animal if they could, or could have invented it if they would, than I believe that an utterly ignorant man could have devised the famous Lunar Hoax—the clever story respecting a powerful telescope showing living creatures in the moon. Yet that story did not, as was alleged, take in Arago; no one acquainted with optical laws could have been deceived by it for an instant. To imagine that sailors could accomplish the far more

difficult feat of inventing a new kind of animal, without immediately exposing their ignorance to every one acquainted with the laws of comparative anatomy, is to imagine the impossible.

THE ORIGIN OF COMETS.

ENCKE'S comet has returned to our neighborhood, and is now (February, 1885) under observation. Yet to all ordinary appearance our skies are unchanged. Those who associate the return of a comet with the appearance of an awe-inspiring object, with long, sword-like tail brandished athwart the heavens, like those comets which have in past and recent ages terrified the nations, are disappointed when they hear that the comet of which the papers speak, and which Professor Young re-discovered a few days ago, and our telescopists are carefully observing, is one which cannot even be seen without telescopic aid. Yet to the student of astronomy the triumph is greater when one small comet is caught in the toils of mathematical analysis, and detected as it advances along its return track, than when the most glorious new comet blazes in our skies, and by rapid changes of position and of form attracts the admiring attention of all men.

I propose to make the return of Encke's comet—the comet of shortest period known—the text for some remarks about the theories of comets more or less in vogue among astronomers, and especially those theories which relate to the origin of these bodies, or at least their introduction into our solar system.

It may be remembered that at the last meeting of the American Association for the Advancement of Science, Professor Young touched on what he called the received theory of the origin of comets, and what he admitted was a valid objection of mine against that theory.

What Professor Young calls the received theory is, I take it, neither a theory nor generally received—it only comes in company with a received theory. Schiaparelli, the ingenious chief of the observatory of Milan, threw out, in 1866, the idea that the bodies which produce the star-showers of Aug. 10 and 11 (the *Tears of St. Lawrence* they were fancifully called in old times) are attendants on the Comet of 1862. When he had shown, which was an easy thing to do, that the apparent movements of those falling stars on the stellar heavens accord with the theory that they are moving in parallel tracks, touching (at any rate) the orbit of that comet at the place where it crosses the earth's track (a point passed by the earth on or about Aug. 10-11), it was felt that he had done something in support of his hypothesis. But when Professor Adams had shown, which was by no means an easy thing to do, that the bodies producing the display of November meteors travel in the very track of the comet of 1866 (known as Tempel's), astronomers saw that Schiaparelli's case was proved. It passed thenceforward from the condition of a mere speculation to that of a received theory.

This is the received theory about comets and meteors which every astronomer who can understand the evidence accepts without hesitation—*Meteors are bodies which travel on the tracks of comets.* More than that has not yet been shown, and more than that is certainly not received by astronomers as a body.

But Schiaparelli suggested more. He threw out a speculation concerning the origin of comets based on his established theory as to the connection between comets and meteors. This speculation would explain, if established, the way in which meteors travel on the tracks of comets. It ran as follows:—Amidst the interstellar depths are flights and clouds of meteoric bodies, which from time to time are drawn out of those depths by the attractive influence of the sun.

Were the sun alone in the universe they would be drawn toward him. sweep around him in greater or less proximity to his surface according to the course on which they chanced to be drawn, and so pass out again to the depths from which they came. But as the sun has a family of attendant planets and some of these are somewhat stalwart fellows, many of the meteor-flights drawn sunwards are so acted upon by the disturbing influence of Jupiter, or Saturn, or Uranus, or Neptune, or mayhap some outer and still unknown members of the family of giant planets, that they are deflected from their course and thenceforward travel on a closed path—elliptic, of course—around the sun. The place where the deflection took place remains thenceforward a part of the comet's path, which therefore seems to associate itself with the path of the deflecting planet, in such sort that, though the sun is the chief ruler of the comet, the planet which introduced it into the solar system retains a sort of secondary influence over the comet's movements. Should the comet chance to revisit the scene of deflection when the planet is passing the same place, potent disturbing influences may be exerted on the comet, which may even send it wandering yet once more into the domain of interstellar space whence, according to this speculation, it was drawn.

Now, I pointed out more than eleven years since that this part of Schiaparelli's imaginings is entirely without foundation in known facts. We may *guess* that the interstellar depths are a sort of breeding-place for comets and meteor systems,—though why they should be so not even Schiaparelli has ventured a suggestion. We may imagine that in the interstellar depths there still remain the scattered fragments of such materials as, when gathered in, had formed our solar system with all its worlds; though why any such fragments should remain *there*, instead of responding to the influences which brought their fellows to the neighbor-

hood of our system, would remain still unexplained. Only five or six millions of years would be required to draw in matter to the sun from half the distance separating him from his nearest neighbor among the stars, and our earth's crust tells us of tens of millions of years already passed since the sun had gathered in his mass so as to shine as a sun upon the earth. But we may concede for a moment the possibility of the wandering meteor flights of interstellar space imagined by Schiaparelli. How are we thereby helped to an interpretation of the origin of meteor systems now in attendance on the sun? Not a whit, seeing that we have only succeeded in replacing one difficulty by another still greater.

If we suppose the meteor streams to have come into the interstellar depths from beyond, that is from the domain of some star, we have removed our difficulty only a step, and not a step bringing us any nearer a solution. That other star is a sun like ours, and if a meteor system came from it to us, we have the same difficulty in understanding how the meteor system came to be in the neighborhood of that sun as we have in understanding it as belonging for a while to our own sun. One may compare this attempt at a solution of a really serious difficulty to Sir William Thompson's well-known attempt to explain the origin of life in our planet. This he did by surmising that millions of years ago another planet was the abode of life, that that planet came unfortunately into collision with another or burst, and that some of the fragments after flitting from sun to sun a few times chanced in their passage through our solar system to encounter our earth, where, falling on good soil, the germs brought forth abundant life: development did all the rest. That planet may have inherited the germs of life from another which had burst or collided a few millions of years before, and so on; we may in fact adopt a theory of planetary life akin to the theory of in-

dividual life—*omne vivum ex ovo*—and say every live planet received its life from a planet which was full of life, but burst up. Schiaparelli's cometic speculation asserts in like manner that every meteoric system or comet now associated with the sun came here athwart the star depths from another sun with which, millions of years ago, it was in like manner associated.

All this, however, is not scientific theorizing but speculation. There is no evidence in support of Schiaparelli's supposition. If it were established we should be as far off as ever from knowing the real origin of comets. But lastly, there happens to be demonstrative evidence against the theory:—

Take the November meteors, whose path crosses that of Uranus so closely as to show that Uranus was the planet which introduced this particular meteor system, if the theory has in it any truth at all. The November meteors, and of course Tempel's comet, in whose track they travel, cross the path of Uranus now with a velocity of $1\frac{1}{2}$ miles per second. A meteor coming to our sun from interstellar space would cross the track of Uranus, if it chanced to come in the right direction, with a velocity of nearly 6 miles per second. Uranus, then, to do what certainly *has been done* if Schiaparelli's idea is right, must have abstracted a velocity of $4\frac{1}{2}$ miles per second from every one of a flight of meteors traveling past it. Now it may be barely possible (I doubt if it is, but the calculations necessary are too abstruse to be entered on save for a very special purpose) for Uranus to abstract so great a velocity from a body traveling past him. If Uranus drew a body to himself from interstellar space, no other member of the solar system, not even the sun, interfering, he could give to the approaching body a velocity of $13\frac{1}{2}$ miles per second; but he could not give any thing like this velocity to a body rushing along by him with sun-imparted velocities, and therefore

exposed for a shorter time to his influence. Moreover, in any passage by Uranus some part of the velocity abstracted or added in one part of the passage would be restored or taken away again in the remaining part. At the utmost, Uranus might abstract from a single meteor some $4\frac{1}{2}$ miles per second of its velocity of 6 miles per second. But Uranus could not possibly produce the same effects on the members of a flight of meteors, however closely we may conceive them to be set. Some would have their velocities much less effectively reduced. And the deflections of direction would be also altogether different. Nothing could save a meteor-flight from being dispersed along widely divergent paths if it came near enough to Uranus to have the motion of any of its members sufficiently affected to make them travel henceforward in such an orbit as is actually pursued by the November meteors, which all travel along the same path.

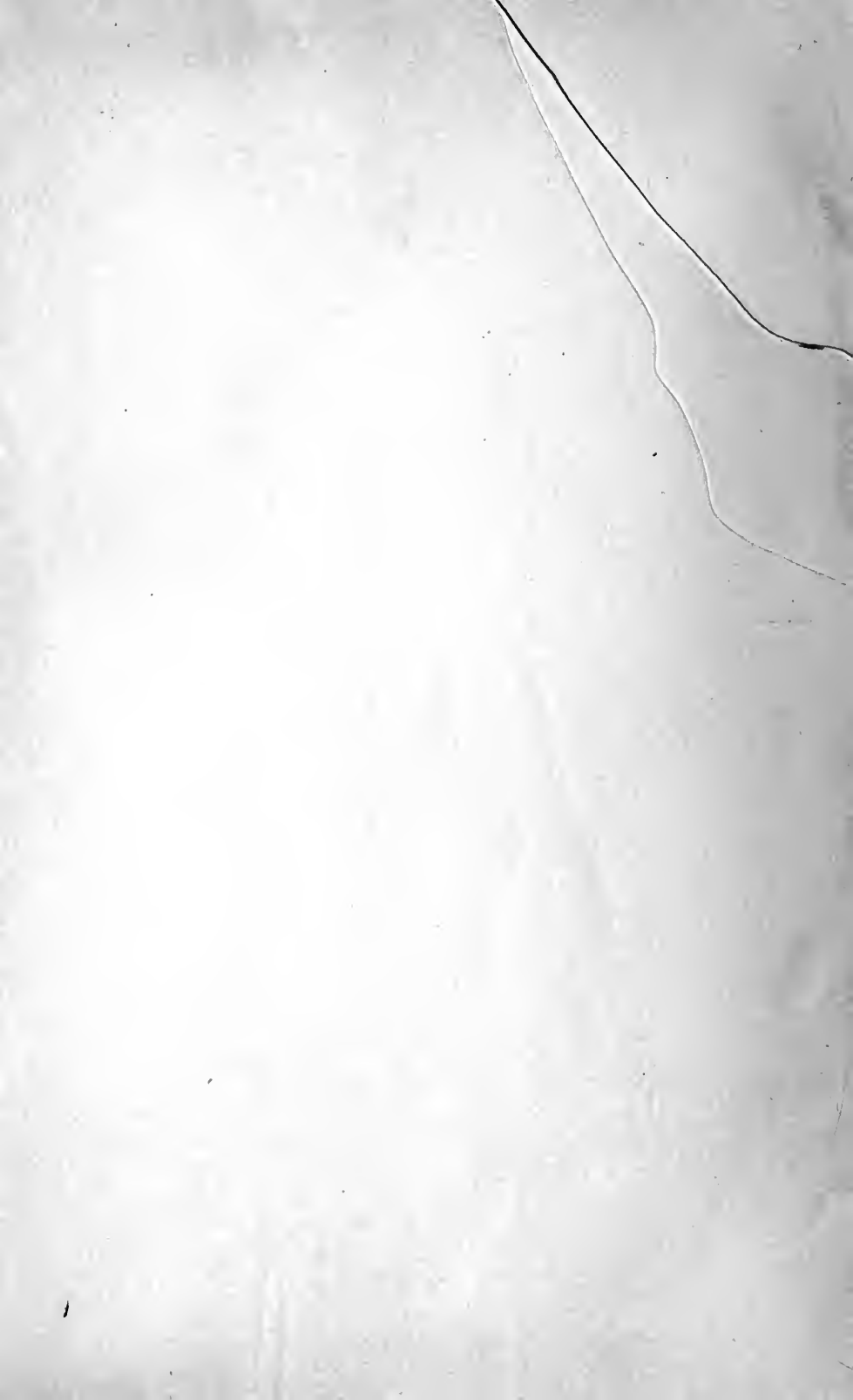
This which is true of one meteor system or comet is true of all. Under no conceivable conditions could a meteor-flight be introduced into our

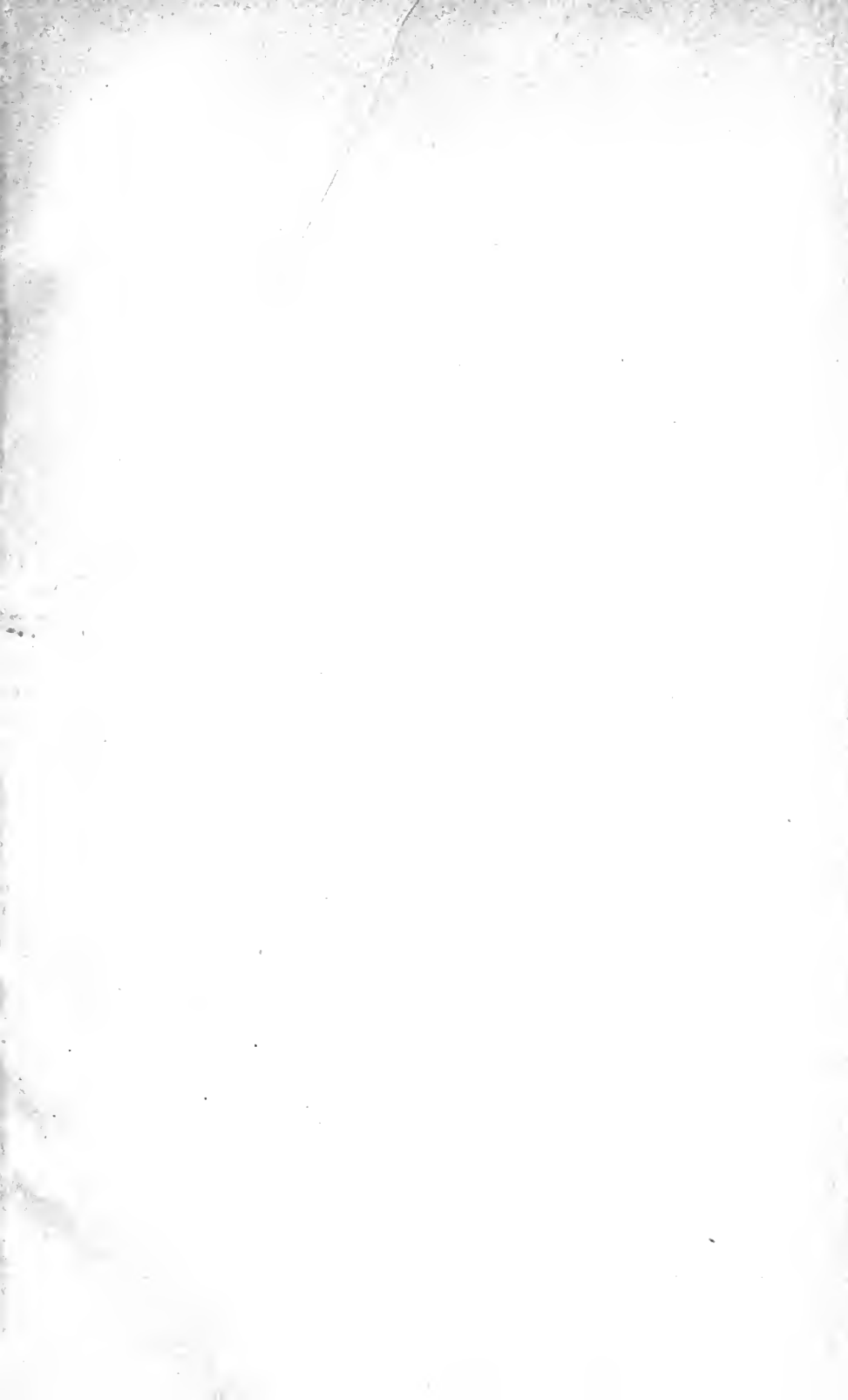
solar system as Schiaparelli imagined. Hence a different theory of the origin of the families of comets associated with the giant planets must be adopted. We *must* in some way admit that every comet was once in the neighborhood of one of the giant planets in the form of a closely-set flight of meteors. This being so, the natural explanation is that each comet started from a planet,—by a process akin to volcanic ejection, or in some such way. Now, on the one hand the sun does eject bodies from his interior, in mighty eruptions which have been actually watched; and the planets when in the sunlike state may well be believed to have done likewise; and on the other hand there is evidence to show that even our small earth once possessed the power of ejecting meteoric bodies from her interior (Prof. Ball considers that some meteor-flights still in existence were earth-born).

On the whole, then, the view seems suggested that comets like Encke's were ejected from the interior of the planet on which they are still found to be dependent.

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