

## THE ENSOULMENT OF NATURE.

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IF we would adequately realise the conditions under which the teleological ideas about nature were set up, we must begin with a glance at that almost complete removal of modern man from contact with nature which, little as we may recognise it, has become one of the salient results of the stage of culture we are accustomed to call civilised. That we know nature with a completeness which makes all ancient wisdom about it, Greek included, a mere affectation, has grown almost trite by repetition; yet we are none the less excluded from that wisdom by a difference of method, founded to some extent on difference of opportunity, which in one respect at least makes the ancients incomparably our superiors. In the primitive stage of human life the study of nature was everybody's business; under modern conditions this study has become the task of a few specialists. For the modern student—deeply as it may fascinate him who makes it his calling, complete as may be the devotion with which he sacrifices worldly interests in its service—it can never be so closely correlated with the needs of existence as to make success in its pursuit, as it must have been in the case of primeval man, a matter of life or death.

As moderns we find ourselves separated by two all-potent conditions from the early interpretation of nature—by a life more or less sessile, and by the specialisation due to industry. It is only occasionally, and then never for long, that we are enabled to realise how completely these characters of civilisation have separated us from the primitive life of man. We get a suggestion of the differentiation by recalling our still unobliterated antithesis between city and country, and by remembering that, in the older regions of the world, at any rate, few of the mass of modern men who live in villages, towns or cities, ever know anything of country life; that fewer still know by travel much of the physical features of the

country they call their own; and that a much smaller percentage can claim acquaintance with the general scenery of the earth's surface. Yet the lesson of our isolation from nature is perhaps best taught when its physiological implications are kept well in view. Nor is it difficult to formulate these when we bear in mind the millions of city-segregated workers to whom we deny even that exercise of the organism which is essential to the normal maintenance and development of its powers. The muscles, made for the vigorous activities of outdoor life, grow limp and flabby in gas-lit rooms where papers are listlessly pigeon-holed or ledgers languidly moved to and fro; the eyes, which in their brightness should reflect the rich furnishing of a thousand landscapes, become dull and spiritless with following the motions of a pen through mazes of figures; the brain, working with its highest alertness and efficiency in the savage, is specialised in civilised man into expertness for some single form of activity which, once acquired, unfits it for all the rest. Sometimes, moreover, this industrial differentiation shows itself in particular forms of bodily ailment or disease, as in the case of artisans compelled to earn their livelihood in occupations which fill the lungs with deleterious fumes, or with germ-laden dust; which pour into the blood poisons both metallic and vegetable; which crack the hands, stiffen the joints, palsy the limbs, and by excessive demands on the time and strength of the worker, dwarf the powers of both body and mind. What leisure or taste can men thus dealt with by our industrial system retain for the study of nature, even as a recreation? How shall we look to the miner, living in the earth's depths; to the shoveller, chained to the furnace-mouth in the hold of an ocean steamer; to the cotton operative, spending his day amid the deafening rattle of machinery; or to the maker of shoes, growing more and more like the mechanism he guides—for even the glimmering of a desire to lose himself in the pleasures, to say nothing of the utilities of nature study? The answers to such questions are obvious. For we are in each case dealing with men whom civilisation has specialised out of all necessity, as well as beyond all opportunity, of contact with nature.

Another condition which separates the modern man from nature is this cultivated ability of his to get his living away from nature. We do not need to know our natural environment even in the interest of self-sustenance. The food which nourishes us is obtained for us vicariously; we pay for it nominally with money, yet really with work which involves us in no sort of educational contact with the deeper physical forces that really dominate our

lives. Our relation is to the co-operative system within nature, so to speak, rather than to the body of nature powers outside. And though the individual unit of the social organism may "eat in tears" the bread which the system bestows upon him, now lavishly, now grudgingly, he finds the *himmlische Mächte* of his over-world not symbolised for him in the lights of heaven, but objectified in the industrial processes of the co-operative commonwealth of which he is a member. In the primitive condition of society the individual human being, like the individual cell, could perform all the functions of self-maintenance with the same degree of efficiency; and it was as much his interest to study nature as it was to obtain his food or to defend himself from enemies. But with the progressive unification of the "social organism" the task of converse with nature was more and more conferred upon a specialised few on its external periphery, while the great bulk of its members were relegated, so to speak, to the interior for tasks of social maintenance such as effectually excluded them from contact with the world of field and forest outside. The knowledge of natural objects, the whole art of nature, once a universal accomplishment, has thus been more and more taken from the average man, and more and more conferred upon the specialist, with the result that the great mass of humanity have no converse with nature, and do not in any sense become its students.

Nor are men—relieved from the necessity of nature study by their industrial arrangements—impelled thereto by any fear of the environment properly so-called. The multifarious phenomena of the external world have ceased to affright us. The rare comet may still move the savage to superstitious ceremonials—as for the modern, the *Cultur Mensch*, he quickly regains his composure in the reassurances of the explanatory magazine article. The celestial interspaces, depopulated of their spirits, have been filled by our modern knowledge with wonder-working ether; it is the power embodied therein which moves the planets in their courses, and the same source of energy that, in various degrees implicated with matter, long ago exorcised the soul of the magnet, and reduced to terms of physical action and re-action the tiny snap of the induction coil, the deafening crash of the thunder cloud. The ancient "He" who used to be active *super nubibus* is now a spiritless impersonal; we are content to say, even in our religious moods, "It rains," "It lightens," "It thunders." In an age which studies its astronomy with an opera glass, the periodical return of the Leonids, the Perseids, the Lyrids, has ceased to excite even a shudder; so

thoroughly have we discounted the phenomenon that the most spectacular star-shower has become a mere show for the gazing vulgar. The eclipse, solar or lunar, we are content to see in our evening paper; if we happen to be out when it lightens, we remember—in that lucid interval of intellectual lethargy which, strangely enough, is called “stopping to think”—that trees are to be avoided. Amid the loudest crashes above us, our feeling—so sure are we that we know the whole process—is that of Skrymir, under the blows of Thor—“Did a leaf fall?”

It is the same with the earth and all that is therein. Well versed in the science of our time, we think ourselves prepared for anything that may happen, while much which might have happened in earlier periods we now regard as impossible. The submarine monster whose movements used to cause the flow of the tides has vanished into the same limbo as that which received the demon convicted by the ancients of trying to make a meal of the sun. Knowing how the hills have been heaved up, how the continents have come forth from their watery environment, we start not at the landslide or at the inundation; even earthquakes, when pitted for competitive purposes against the interest of prize fights or—*longo intervallo*—national elections, continue, as in the days of Thrasimene, to “pass unheededly away.” And if the more boisterous phenomena of nature fail to obtain recognition, the quieter mysteries of our planet share the fate which, in a world of noise and self-assertion, menaces modesty in all its forms. As the old-time whisperings of grove and fountain are silent, gone also is the piping of Pan; the places that once knew the naiad and the dryad know them no more. The ancient interest in animal life which carried the belief of man’s kinship with it into the totem worship of a thousand savage clans, divided by as many seas and mountain ranges, can now be kindled for a brief hour only among our young in the enthusiasms of the peripatetic menagerie. Outside the devotion of the professional botanist, the mysteries of the plant world pass for the mass of humanity unappreciated. In Kant’s time the changing of a single seed into a blade of grass was deemed worthy of a judgment which, in its wonder and despair, placed the cause of the phenomenon beyond the utmost reach of the human intellect for all time; yet to-day, trampling the green spears of the tiny host beneath our feet in myriads, or destroying millions of their slender blades with our patent lawn-mowers, we forget that there is any problem. Why, indeed, should we give thought to so simple a case of miracle when the metamorphosis of a well-nigh invisible

germ into a man—the greatest mystery of all—has become the greatest commonplace of all?

Yet we should seriously err if we were to suppose that this modern contempt of things familiar, by discounting phenomena that once filled the life of primitive man with anxiety and terror, implies any knowledge of natural appearances at first hand, still less any intimate or profound contact with nature. Most of us gain our knowledge of the external world from books, or from the teaching of experts; a mere effort of memory, and the stored-up information interests us no more. We realise that the earth is round without once witnessing the experiment of the retreating ship; we know that our planet moves about the sun without noting the annual march of the constellations from east to west. How many of us have ever seen the solar spots, or know as much of the moon and her craters by direct observation as did Galilei? Perhaps we are able to distinguish between such conspicuous planets as Jupiter, Venus, and Mars; but have we, in genuine enthusiasm for nature, ever risen early enough to pick up so elusive a brilliant as Mercury, as it glimmers faintly for moments through the reddening dawn, or after extended struggles with the mysteries of “right ascension” and “declination” succeeded in following Uranus or Neptune to the constellation in which for the time being she happens to be making her home? Are we really interested in the night skies, and do even our educated—eager as they may be for the reputation of culture—watch the heavens each season for the returning planets as the happy gardener awaits the blossoming of his favorite flowers? Full of lore as we are of the rocks and their fossil remains, do any of us, save a few experts, ever go down into the strata to see for ourselves the wonders of which we talk so glibly? Is the wayside eloquent for us, as we pass through country lanes, with stories of the process which gave us our planetary home, millions of miles from the warm hearth fire to whose gravitating embers we were said (before the advent of radium!) to owe so much of our right to exist? With electricity in the very air we breathe—here multiplying our powers of locomotion a thousand fold, there carrying our voice or expanding our sense of hearing to untold distances—how many of us, repeating the simplest experiments after the great discoverers, know even so much of the properties of the objects about us as to be able to turn a piece of soft iron into a magnet, or to light a gas jet with an electric spark drawn from the carpet at our feet?

It will indeed help us in our effort to realise why certain views

of nature should so long resist the solvent of the objective or scientific method if, turning to the conditions which preceded the differentiation described, we glance at the life lived by primeval man millions of years, it may be, prior to the beginning of recorded history. It was a life of contact with nature the closeness of which has no parallel in modern times, even among savages—a period in which modern forms of coöperative relation between man and man may be said to have scarcely yet begun.

Our ancestor had to fight his own individual battle for self-sustenance, and had to fight it in the open. During periods geological by their very length, his struggle for existence was a struggle which kept him continually on the move—everywhere facing sky and air, everywhere bathed in shine and shower, everywhere drawing in from his environment that knowledge of nature at first hand which was to come to the great mass of his successors through books, or by means of personal instruction. His first acquaintance with the external world was probably gained in the forest, since it must have been in an arboreal environment that, forsaking the quadrupedal for the bipedal attitude, he made his first acquisitions in the realm of human speech. Here it was that, only just cunning enough for the spoken word, he was glad enough to mutter his first incantation—half-prayer, half-apology—to the beast he had been compelled to slay for food; here, too, that he must have emerged from his first successful encounter with a sense of the embodied potencies of animal life of which the modern sportsman feels nothing.

And it was in or near this leafy retreat, which now held off the torrential rain-burst, or now shielded him from the mid-day heats, that well-nigh every species of animal competed with him for the opportunities of sustenance. Athwart his pathway glided the snake, incomprehensible in its powers of motion and disappearance; above him, even more unintelligibly, soared the bird, resting without support, or moving without effort—able to make itself invisible before his very eyes behind leagues and leagues of transparent distance; around him were the lithe, bounding animals of prey—the broad-browed graminivora, the horned runners with the split hoof, the striped forest prowler, or the leaping, cat-like lyers-in-wait—each there to stimulate his imagination and test his strength in cunning or in combat. Roamer in the forest, he was also hunter along the river-bank; as fisherman, he awoke to the still stranger powers of the water-world, with its tidal irregularities, as mysterious as its sudden inundations—with its sources at heights which the vision

placed near the meeting of cloud and mountain top—with its wondrous life concealed in underworld caves and Dom-Daniel palaces whereat the fancy stood aghast.

Nor did his mind find less incitement to activity in the travail which made him alternately an agriculturist, and a raiser of herds, or at a still later stage, gave both those interests into his keeping. In the open field he found himself beneath an open sky, and could store up as daily lessons the sights and sounds of the most primitive meteorology man had ever known. And though the vault above might feed his sense of wonder with the silver phases of a growing and waning moon, he had around him a yet greater miracle—the waxing and ripening of the seed into the mature plant—the gift by earth and sun and air of his daily bread.

Perhaps the grandest of all the objects that met his gaze as more and more he gained opportunities for contemplating it was the earth itself—the solid mass which, extending beneath his feet as far as eye could reach, seemed, according to his elevation, now like a plain of enormous thickness, or now like the same disk sloping from the horizon into a concave beneath him, yet ever cupped over by the same inverted hollow, the same evasive, melting depths which defied the effort of vision to sound them. How the massiveness of our planet must have impressed him: early enough in his goings to and fro he must have felt the mightiness of its strength, not to be tipped aside by all the weight of the cloud-soaring mountains—the firmness of its foundations, not to be shaken by all the length of the outstretched sea, or the raging thereof. Nor was it any the less mighty because man had as yet created nothing of his own to diminish his wonder at the nature environment—had raised no temples, obelisks, coliseums, aqueducts or amphiaters to compete with it in the spectacular effects of human handiwork. The far-extending city did not yet exist even in dreams; the only known architecture exhausted itself in those simple lines and curves that went to the making of the rudest domiciles ever contrived for the shelter of man. For then our ancestor had his home in the forest tops, or he wove it aground with the branches of some fallen tree; he crept into some crevice left by the subsiding of rocks once upheaved; sought on the rude, pile-supported platform, the protection of surrounding waters; or appropriated inshore the cave deserted by some wild animal. Yet none of these could seem other than insignificant and contemptible when contrasted with the massive, the tremendous nature that lay everywhere about him—world of crag and valley, of lake, island and stream—an expanse of far-

extending territories which forest might darken or mountain range wall in or divide, but which must none the less have acted on his imagination with a vividness and power of which our own poetry-aided feeling of to-day gives us no more than a suggestion. Nor need we wonder that with the sense of its features in all their luxurious *ensemble* strong upon him—features of breadth and distance, of height and depth, of fixity and movement, of color and form—our forefathers should have given ceremonial expression to their feelings in earth worship, and should have made the bridal of the earth and sky the subject of thousands of their myths.

No less potent in their influence upon the primeval mind were the phenomena of the heavens—the realm into which the bird disappeared, the deeps from which the hissing meteor came forth, the broad gateway through which the dawn made its way. The most important of them—the daily return of the sun—must have been awe-inspiring beyond anything we can now conceive. Sometimes bringing death as well as life in its wake; the devastator of the scorched plain, as well as the giver of life to the sown field—the orb of day called forth the adoration of the agriculturist as well as of the sun-worshipper, and by common mortals everywhere must have been looked for with an eagerness of which our own science-protected humanity knows nothing. If the return of light is striking enough even when it floods the arctic plains after months of absence, what must it have been to primitive man in latitudes where the whole transition from dark to light is accomplished in a few minutes, and where the busy life of wood, stream and plain bursts anew into activity ere one can realise that it is sun-rise? And if into the sun, thus endowed with power over nature, primitive man could not fail to read the characters of will and personality, as of a nature deity daily enthroned and processional, the moon herself, inexplicably growing and fading, could hardly escape a like personification. Nor were the stars wanting in an impressiveness all their own, as, night after night, year after year, the bright luminaries succeeded each other along the same celestial track, sometimes shrunk to points of nebulous star-dust, elsewhere expanded into heaven-circling highways—brightest of all when touched into planetary splendor, here with a blaze in the night sky, there with a white spangle on the brow of morning. That all this mysterious show—of sun, moon, planet and star—should once every twenty-four hours pass away from sight, and only by some sub-celestial necromancy hidden below the earth's rim, should finally reappear

again—this for the primeval world of thought must have been the wonder of wonders.

There was indeed enough in the silent, motionless, unchanging aspect of the environment to impress nature deeply, indelibly upon the fresh feelings of primitive man: to this aspect of the world, with its suggestions of power, magnitude, immensity, endlessness, our ancestor could have accommodated himself without difficulty, with perhaps scarcely an effort. Yet the nature to which there must be adaptation was no world of surfaces, however extensive, nor yet any mere complex of objects, however numerous. Under scrutiny, its steadily burning lights became dissolving patterns that almost might be said to fashion men's nocturnal experiences each night anew: its solid earth, in the stress of life upon and motion over it, became a shifting floor the conditions of sure foothold in which varied from day to day. Not the quiescent, the immovable, but the changing elements it was that made nature terrible to primitive man—for it was a nature ebbing and flowing, seething and bubbling, rising and falling, swelling and subsiding—a nature ready to rise and overwhelm, prepared to fall and engulf—yet withal a nature in the deadliest sense uncertain and unknowable. And it was such uncertainty as this which impelled our ancestor to the search after some method of orientation, some principle of vicissitude, upon which he might depend for the guidance of his change-threatened life. The problem was that of reducing the multifarious mysteries of motion to some intelligible order, principle, or law.

Primitive man failed, not in the knowledge of nature changes, but in the power to interpret them. Within the great commonplace uniformities which brought day and night, which yielded the phases of the circling moon and presided over the return of a few familiar constellations, there were thousands of occurrences as unforeseen and unpredictable as is the cloud pattern of any midday sky which, with its streaks of white, its patches of gray, its blue-bounded hillocks of vapor, its far-extended and threatening sheets of gloom, shifts and moves and flows above us like a panorama. From the realm of phenomena whose incessant stream was even more tangled and causally obscure than are many meteorological phenomena for us to-day—out of that maze of vicissitude whose separate elements traversed each other in countless complexities of intersection—primitive man sought, vaguely and unconsciously that organised sense of definite processes sure to be repeated whenever the conditions recurred which we now call acquaintance with natural law. From the ghostly patter of the wind-driven leaf over

the surface of the snow plain to the writhing of the many-armed forest under the lash of the storm; from the soft flame of the will-o'-the-wisp to the meteor shower threatening with destruction the whole works and race of man; from the simplest changes of plant life to the phenomena everywhere yielded by man himself—the swoon, the long fast, the awe-inspiring delirium, the mysterious death—there were innumerable events which, while appealing with the utmost power to the mind of man, found in that mind no explanatory principle.

What of darkness in such an age, and of the uncertainty which accompanied it? If we would realise the fear-burdened night of primeval man, we have only to think of him with stone-headed spear defending his usurped retreat from the cave bear, or with his fire-girdled bivouac holding off, for a few brief hours of slumber, the whole forest of mysterious sounds hurled at him in mock or in menace. If we would know on what vicarious pains our own safety in life is founded, or appreciate at its true worth the care-void complacency with which we go about our daily tasks, and after sunset in our street-protected cities build up from undisturbed sleep the strength needed for the morrow, we must recall the thorny ways through which, with torn limbs and bleeding feet, amid hardships and perils beyond counting, primitive man—gibbered at by everything anatomically and intellectually beneath him—toiled up the first steps of the ascent to civilisation, hewing a safer pathway in the obdurate rock of circumstance for those who were to come after.

Yet the terrors inflicted upon man by his faulty knowledge of cause were by no means dependent on particular times and seasons. We recognise this in the pains which our ancestor lavished by day as well as by night in order that, with the aid of spells, charms, ceremonies, he might shield himself from the evil influences of objects which he believed capable of acting upon him injuriously. What care he took in the selection of his cave or hut, with a spell for every branch or plank thereof! How carefully guarded were his crops, his implements, his cattle in an age when demons were more plentiful than gnats in midsummer! His very days were made lucky or unlucky for him by influences which only magic could adequately counteract. The same subtle agencies held man's body in constant peril. Spirits disputed the way to the human newcomer throughout the period prior to childbirth, and their baleful influence called for the most powerful exorcisms. Nor did successful birth remove the terrors which filled the life of primeval

man with foreboding. Not an object passed by him in his outgoings which might not, through the subtle influence of analogy or association—doing duty for the knowledge of cause—announce to him the displeasure of one deity, or become the instrument of the deadly, self-executing vengeance of another. So surrounded was our ancestor by demon-like beings, waiting for the opportunity to injure or destroy, that he could not carelessly throw away the tuft of hair from his head, or the nail-paring from his finger, lest these objects should immediately be used against him as the instruments of a maleficent will. His name could not be pronounced save with precautions taken to safeguard him from evil; the rude drawing of him on slate, sand or wax—so absolutely was he at the mercy of his fears—might very well be used in a persecution culminating in his death. The magician was indeed his enemy; yet the most terrible of the sorcerers who beset him was his own mind, the subtle linkings and enchainments of which, added by the physiological demand for a theory of cause, so involved him in the phenomena of his daily object-world that any unusual accident—any occurrence of chance association—a supposed or real likeness—an event happening simultaneously with or after another—the coincidence of a personal experience with some unusual natural event—sufficed for the sorcery of which he was himself so largely the originator. And to-day the whole story of savage magic and modern witchcraft, however we may wonder at it, yields us no more than a pale reflex of the conditions under which early man successfully asserted his primacy in the animal world not only against living competitors, but also against the spirits and demons, the ghosts and deities who, conjured into existence by his own imagination, contested every foot of his way upwards.

Man thus helpless in the presence of phenomena needed an intellectual deliverance, and this could only come through an adequate knowledge of cause. But his mind was unfitted for its discovery. Impressed with only the superficial differences of objects, our ancestor failed to recognise their profounder likenesses, and therefore could not bring into existence the deeper classifications needed for the recognition of cause. Living largely in the feelings of the moment, with only an elementary degree of the power to relate and compare, he was at the mercy of the sense images of objects, and of the disparate glimpses of his environment which they yielded. His view of nature resembled that of one who, eager to see the complete surface of a planet in full sunlight, should be allowed to glimpse no more than the illuminated peaks which it presented to

him at sunrise. And it was because primitive man thus failed to realise those deeper bonds of connection which stretched beneath the luminous points of his system of sense-images—failed to recognise the profounder likenesses, the fundamental causal characters of things which, evading his gaze like great gaps of unfathomable darkness that only centuries later the daylight of science was to fill—that he failed to formulate for the phenomena of change in his environment the principle since given to us under the modern conception of natural law.

The time for confidence in nature had not yet come, and man, distrustful of his surroundings, fearful of his ignorance, turned to the one object which he knew better than any other, turned to the one process with which long and favorable experience had made him familiar—turned to himself and sought in his own body, in his own feelings and thought, the explanations which nature had concealed from him. Lacking the knowledge of cause, the external or objective means of explaining nature processes, he projected into the world around him the soul principle which he believed he had found in himself—invested objects, that is to say, with a soul life, and explained their changes and movements by supposing that they also, like the human organism, were ruled by the powers of life and mind. It was a hypothesis crude in the extreme, yet it gave an explanation of nature such as, for want of something better, not only allayed somewhat that sense of uncertainty which made phenomena a perpetual source of terror to him, but also helped him, however inadequately, to adapt himself in the interests of self-maintenance to the perplexing vicissitudes of his ever-changing environment. And it was the vast period during which this teleological view of Power, this personal view of Nature, swayed the mind of man, amounting to many millions of years in the most impressionable period of the life of the race, which surely accounts, as nothing else ever can, for the strength with which, in refined forms, it still dominates the thought of the world.