DE VI PHYSICA.

QUIDQUID enim ex phenomenis non deducitur, hypothesis vocanda est: et hypotheses seu metaphysicæ seu physicæ seu qualitatum occultarum seu mechanicæ in philosophiâ experimentali locum non habent. In hâc philosophiâ propositiones deducuntur ex phenomenis, et redduntur generales per inductionem.

NEWTON'S PRINCIPIA.

Nec perfecte unquam intelliget scientiarum theoremata quicunque est Logicæ omnino expers. Itaque jure optimo Aristoteles hujus artis ignorationem veteribus philosophis exprobavit: et procul dubio si nunc viveret longe plures et longe acriùs eo nomine incusaret.

JULIUS PACIUS IN ORGANO.

DE VI PHYSICA

ET

IMBECILLITATE DARWINIANA

DISPUTAVIT

FRANCISCUS GULIELMUS BAIN,

ARTIUM MAGISTER.

SCIENDUM TAMEN, QUOD CUJUSLIBET REI REALITAS PRESUPPONIT POTENTIAM, SINE QUA NON DATUR ESSE: QUIA SECUNDUM PHILOSOPHUM IN OCTAVO PHYSICORUM, NON FIUNT IMPOSSIBILIA.

Guilhelmus de Ockam sup. libros Sent^m.

James Parker and Co.

27 BROAD-STREET, OXFORD;

AND 31 BEDFORD-STREET, STRAND, LONDON.

1903.

NOSTRI sæculi homines, dum Naturæ artus et membra, Bacchantum ritu, divellunt in fragmenta, Totius interim compositionem organicam et animam et ut ita dicam punctum saliens et principians non agnoscunt et nihili faciunt et omittunt ex ratiunculâ. Quæ negligentia et scientias et philosophiam et literas, barbaris jam iterum ingruentibus, pessum dejicere minatur, et dejicit, nemine contradicente. Hoc igitur opusculum illis præsertim scriptor voluit commendare lectoribus, inter rariores rarissimis, quibus Natura ipsa et Scientia solida et vera Inquisitio physica magis cordi et curæ sunt, quam auctorum quorundam auctoritas et vulgi vana opinio et res illa teste Domino de Verulamio omnium pessima, errorum apotheosis.

QUÆRITUR : *Utrum Natura saltus facit in partibus animalium generandis.* Quod

NEGAT Darwinius, ore suaviloquo re tamen prejudicatâ pronuntians ultro, NATURAM SALTARE NON POSSE: et miraculum sapere contrariam opinionem. Quæ dogmata probare male nititur viam ingressus physico vetitam : FINGIT enim hypotheses et entia COMMINISCITUR, avi sinistrâ !

ASSERIT Contra hic, Naturæ secutor et Philosophi, objiciens, luminibus plane carentis esse, negare vim Naturæ saltatoriam : cum saltus haud infitiandos et FECIT et FACIT et ipsa se coacta COGIT facere, suæ ipsius NECESSITATIS et Parens et Filia. Quod ex phenomenis deducitur, more Newtoniano, duce et auspice Natura.

SUB . JUDICE . LIS . EST . CLIENS . NATURA . PATRONUS . CLIENTI . SI . FRAUDEM . FECERIT . SACER . ESTO.

CONTENTS.

DE VI PHYSICA ET IMBECILLITATE DARWINIANA.

Quid possit oriri,
Quid nequeat.

LUCRETIUS.

IN the beginning, says Goethe, was the *Act;* but he is wrong: there is something prior even to the act—the POWER. For nothing can begin to be, which had not first the power to be: the POWER-TO-BE must necessarily and inevitably, always and everywhere, precede the BEING, otherwise there can be no BECOMING. What is impotent, cannot generate: and what is impossible, does not happen. Therefore it is, that, as Aristotle alone of all the philosophers understood, Power and Possibility are the root and core of all Nature.

And Nature shows her power nowhere more clearly or more admirably than in the parts of animals. In their eyes, as those of hawks and owls; their ears, as those of hares or bats; in the foot of the camel or the polar bear, the wing of the humming bird, of the dragon fly, or the condor; in the trunk of the elephant, or the vertebral column of the boa-constrictor; in the tongue of the woodpecker, or the battery of the electric eel; in the claws, jaws, wings, weapons, and all the marvellous organisations of insects, and briefly, in all the innumerable parts of animals, as well as in the knowledge, generally intuitive, which every animal possesses, of how to use its peculiar organs so as to employ them to the best advantage: we see the Power of Nature, in actual existence and operation.

What is this power? What do we mean by Nature, the *Natura-Naturans?* Or in other

words, how do the parts of animals, and the entire animals, which are combinations of parts, come to be? A question which Aristotle was the first to raise, and scientifically seek to answer.

The experience of Aristotle was limited. And yet, in endeavouring to answer the question in modern times, some eminent philosophers, far better furnished than he was with *data*, compare most unfavourably with that old sagacious inquisitor in judgment and the power of analysis. With the animals of the whole world ranged before them, they totally ignore the obvious and necessary significance of many of the most familiar organisations, as he was careful not to do. A *necessary* deduction from even a few facts cannot be upset by no matter how many more. Nay, even a single fact will sometimes furnish Archimedes with a lever wherewith to move the world. The moon

alone was for Newton, whose astronomical knowledge was very scanty in extent, the stepping-stone to the discovery of a law extensive as the universe. But facts are thrown away upon those who do not possess sufficient analytical power to deduce and extract from them their meaning by subtle interrogation. Still more useless is a fact to one that will not see: blinded by prejudice, or it may be, by a theory that preoccupies the mind, and closes the eye to all but what supports it, begetting the most desperate special pleading in its favour, till at length scientific reputations and the credit of great names are involved: then other motives come into play, and facts claim recognition in vain. *Quoi! il me faudra rénoncer aux dogmes d'Epicure?*

I.

The necessary foundation of science is, rigorous exactitude in elements and principles.

And since all scientific explanation essentially consists in referring the phenomena of Nature to causes, forces, agencies, principles, &c., that are ABLE to produce and explain them: whoever comes forward to offer us any such cause, force, agency, &c., as an explanatory principle is scientifically bound to satisfy himself beforehand that his principle does actually possess the power to effect those results which he employs it to explain. As, e.g., a teacup of water spilt in Abyssinia will not account for the rise of the Nile at Cairo: an ounce of gunpowder will not produce an earthquake of Lisbon. The cause must be *adequate*, in kind and degree, to the effect. And if, without the

necessary preliminary verification and scrutiny, any one should bring forward a principle of explanation intrinsically *impotent* both in kind and degree to effect the results in question, it will not make matters any the better, if he should subsequently ransack heaven and earth in search of facts that only seem to support it but never can: for no amount of evidence can establish an impossibility. It is futile to accumulate piles of evidence to prove that two straight lines can enclose a space. He ought to have begun by testing the power and possibility, mathematical or physical, of his principle, before he set out. For to appeal to an adequately powerful principle is truly scientific procedure: to ascertain, with rigorous severity, that it is adequate, before resorting to it, is the mark of a really scientific thinker: to explain power by impotence, supposed, by reason of a want of analysis, to be potent, is

unscientific: to explain Nature by impossibility, in pure unconsciousness of what you are doing, is ridiculous.

II.

Any Quantity or Magnitude, considered in a purely mathematical or quantitative way, may be regarded as the outcome of a series of continuous, successively accumulated minute quantities or *increments* of which it is the limit. And conversely, any such Quantity, by the inverted process, continuous *decrement*, will become as small as we please, till it vanishes, or differs by no appreciable magnitude from zero, or nothing.

It is this principle, variously manipulated and applied, which has given such power to modern mathematical analysis. It is the potent instrument of discovery and investigation in its own sphere, the sphere of

abstract calculation, and all spheres legitimately subordinate to it, in which things can be treated in a purely quantitative way[a]. But in the domain of Nature and Reality, there are limits to the power and efficacy of this principle of continuous increment. Its omnipotence tends to disappear, in proportion to the degree in which things cease to be able to be considered as purely quantitative magnitudes, and we enter the field of qualitative and other real distinctions in the economy of Nature. In the organic world, where quantity is not everything, this principle has explanatory value only within very definite limits, and we require to be very careful in attending to those limits,

[a] e.g. Newton proved that a particle outside a hollow sphere is attracted by it as if the spherical material were collected at its centre: the same is true of a solid sphere, because it may be legitimately considered, *in a mechanical point of view*, as consisting of an infinite number of hollow spheres one within the other.

otherwise we should fall into serious error. As, for example, the continuous successive accumulation of minute grains of sand, one by one, will and must, given only time enough, ultimately form, and so account for, a pyramid, mound, or layer of sand. Here is a case of the *power* of accumulated increment. But no successive accumulation of minute forces, no matter how long continued, would or could ever elevate, and thus scientifically explain the elevation of, an enormous mass of matter, requiring for its elevation the instantaneous application of an adequately powerful force. Let the fly try every day to raise the elephant, it will never do it. Accumulation here is powerless, and continuity, impotent. And so, generally, though the principle of explanation by continuous accumulation is potent in cases where it applies, yet in Nature, there are distinctions: quantity is not everything: some things can,

and others cannot, be scientifically explained, on the principle of accumulated continuous increment.

III.

That school of geological explanation, of which Hutton was the originator, and Lyell the most celebrated exponent, based all its scientific interpretations on this principle of accumulated increment, this continuous addition of minute operations. Inspired by a horror of 'catastrophe' and 'creation by *fiat*' (the two things are not necessarily associated, but the school was apt to confound them together, and ban all catastrophe as miraculous [b]), it aimed at accounting for all the phenomena of geology by the accumulation, in enormous periods of time, of slight, successive, scarcely perceptible increments

[b] See below, § VIII. on this point.

and decrements, '*without violence and without miracles.*' It scouted the resort to causes different in kind or degree from those now to be observed in operation around us: it invoked 'causes now in action.' For any great, abrupt, sudden, or 'catastrophic' agencies seemed to it not only touched with the miraculous, but superfluous and unnecessary (on Ockam's principle, *non est ponenda pluralitas*), since it credited its minute agents and forces with the necessary power, by accumulation, to do the work, granting them only sufficient time: and time, in the eyes of this school, was practically unlimited [c]. Thus, in its hands, Geology was practically identified with Physical Geography, because it held, that in studying the *present* operations of Nature we are in fact studying also the *past*: the two being only temporally different, but

[c] See below, § IX.

dynamically the same. Hence Lyell gave the name of *Principles of Geology*, and De la Beche that of the *Geological Observer*, to works devoted to the study of *present* physical operations: a study in itself the most fascinating in the world.

But how far this geological uniformitarianism was scientifically sound: how far, since Lyell's day, experience has confirmed or rejected it: how far its drafts upon the bank of time can be honoured: how far its minute agents have actually the *power* attributed to them: how far land is or is not, slowly and imperceptibly, actually rising or sinking: how far earthquakes have or have not *power* to produce permanent slight alterations in the level of continental areas: how far *running water* actually has or has not the *power* of erosion in rock, soft or solid, naked or covered, level or inclined: how far *ice* has or has not the *power* of scooping: how far

waves have or have not the *power* of destroying cliffs and shores: what is or is not, generally, the *power*, the actual, positive *power*, destructive or creative, of superficial agents, and how far that *power*, such as it is, is modified or neutralised by differences of climate, material, or position: how far it is or is not true to identify Geology with Physical Geography: it is not here necessary to inquire. It is sufficient for the purpose in hand to note carefully two things: I. That the essential characteristic of the Lyellian school was the endeavour to explain and account for all, even the most colossal, phenomena of geology, on the principle of slow successive increments, minute operations accumulated in vast periods of time. II. That the school, notwithstanding its industry in other directions, took the *power* of its minute agents generally for granted, and made no serious investigation, no experimental veri-

fication, into the *power* of ice, water, waves, &c.: still less did it inquire, to what extent it was possible to add up and accumulate forces. Had it actually looked carefully to see, what, in point of fact, its little agents and forces could do, it would have found, that on the one hand, they are in many cases altogether *impotent* to produce the effects attributed to them: while on the other, many natural geological phenomena (as can be irrefutably demonstrated) could not possibly have come about save by the application of colossal force, instantaneously applied. But the school of Lyell, preoccupied by its dogma, was not careful to verify the power of its little agents. In this, it violated the cardinal principle of that Baconian philosophy, to which it was always loudly appealing; and failed to follow in the steps of Newton. It explained Nature by the cumulative effect of little agents, of whose power it was not

assured by rigorous observation or experiment: a method very different from that of Newton in establishing the law of gravitation. When Newton said: *hypotheses non fingo:* he was not, as some absurdly now imagine, speaking ironically: he meant what he said: *videlicet:* that if he appealed to a power, he first *made sure* that it was one. But in the nineteenth century, figmentary hypotheses, euphemistically termed 'working' hypotheses, were the logical fashion and the order of the day: fleeting shadows, coming only to go away again: speculative bubbles beautiful to look at, formed in one moment only to burst and be forgotten in the next.

IV.

Now Darwin was a Lyellian of the Lyellians. This would be sufficiently obvious to any student of his writings, even if he had

not expressly acknowledged the filiation in the dedication to the most popular and most attractive of his works. "To Charles Lyell, "Esq., this edition is dedicated with grate- "ful pleasure, as an acknowledgment that "the chief part of whatever scientific merit "this Journal and the other works of the "author may possess, has been derived from "studying the well known and admirable "*Principles of Geology*." It was to harmonise with Lyellian principles of Geology that Darwin *invented*, not only his famous theory of the Origin of Species, but also the less known, but not less noteworthy theory of the origin of Coral Reefs. Darwin builds on Lyell, and they stand or fall together: an interdependence not sufficiently understood. It deserves, further, to be noticed, that few things ever gave Lyell more pleasure than Darwin's theory as to the origin of Coral Reefs. "On receiving from its author a

"sketch of the new theory, Lyell was so "overcome with delight, that he danced "about and threw himself into the wildest "contortions, as was his manner when ex- "cessively pleased [d]." A most interesting geological phenomenon! Lyell eagerly embraces the theories of Darwin, just as Darwin did his, neither of them perceiving the scientific illegitimacy of purely gratuitous hypothesis: of which more anon.

The step that Darwin took, in further extension of Lyellian principles, a step that covered him with glory, though it ought to have covered him with ridicule, was this.

If, with Lyell, and his school, we elect to explain the '*rocks*' by accumulated minute increments, then there remain over, as anomalies in the scheme, the *fauna* and *flora*. How, now, as to them? It would manifestly

[d] Judd: Introduction to Darwin's *Coral Reefs*. (See Appendix to this book.)

be futile and systematically inconsequent to deny catastrophe and creative *fiat* in the inorganic, if they are to be retained in the organic world. Or in other words: if the '*rocks*' have been formed by accumulated increment in vast periods of time, could not plants and animals have been so too? *This is Darwin's conclusion*, and the genesis of his 'discovery' of 'Natural Selection': which is simply the further extension of the Lyellian principle. 'Natural Selection' is nothing but Lyellian accumulation applied to biology: the theory, that the organic parts of plants and animals have originated, little by little, by slight successive increments, or variations, continuously added up by survival of the fittest, i.e., 'Natural Selection.' Lyell accepted it, after an interval, just as he welcomed Darwin's other 'discovery,' the theory as to Coral Islands[e], because it dove-

[e] See Appendix.

tailed precisely with his own scheme of the nature of things: being in truth that very identical scheme in other clothes.

But if, now, Darwin had really been, what many believe him to have been, a profound thinker, an intuitively scientific, systematic, organising mind: had he been, as every true thinker is, conscious of the enormous difference obtaining between a scientific hypothesis founded on induction and a purely speculative conjecture: the first thing he would have done, in proposing to himself to account for the origin of the parts of animals by 'Natural Selection,' by accumulated increment, would have been, *to verify the power of his agent.* He would have asked himself: Has my principle the power which I am attributing to it? Is it *possible* to account for all the parts of animals by successively accumulated increments? Are there not parts which *could not possibly* have originated in

this way? What are, if any, the limits of the power of accumulated increment? Is there, in organic parts and systems of parts, any element irreducible to the principle: anything which, from the nature of the case, accumulated increment cannot possibly explain?

But Darwin never did anything of the kind. To question the power of Natural Selection; to doubt, whether organic parts *could* be produced by continuous accumulation, never entered his head. There is not, in all his writings, a single line even betraying a suspicion, that such a preliminary consideration was even necessary. So far from doubting that accumulated increments could produce the parts of animals, there never even seemed to him to be any question about it. Had any one told him, that accumulated increments *could not possibly* have produced the parts of animals, it would have

struck him dumb with surprise. He simply took it for granted that they could: following the ordinary method of his school. Just as neither Lyell nor any of his school thought it necessary to verify the power of their minute agents: just as Darwin himself invented—a pure figment—the sinking of the whole floor of the ocean to account for Coral Islands, not because, in the language of Newton, he had *deduced it from phenomena*, but simply because the assumption would enable him to explain Coral Islands in a Lyellian way: so here, in precisely the same spirit, he invokes *successive slight variations* to account for the origin of all organic forms, without thinking it in the least degree necessary to enquire, whether in point of fact his agent could do the work, and whether there was not something in Nature's instruments which it was beyond the power of accumulated incre-

ments to produce or explain. He treats the ANIMAL precisely as if it were a ROCK, capable of being arrived at by the accumulation of minute increments in immense periods of time. The essential difference between a living animal, and a dead mechanical mass of matter, escaped his attention. The false analogy of artificial selection led him astray. He saw it producing great cumulative effect by the addition of slight variations: but wholly failed to perceive two things: I. That this *addition* depends on the devices of art, and is impossible under nature. II. That no *organ* has ever been produced by artificial selection, which only varies the form and size of those existing. He most unaccountably overlooks a fact, sufficiently obvious, that in the hands of art, the animal has its life preserved for it, under all its transmogrifications; whereas under Nature, it has to preserve its own.

This *vital* difference is all in all. For under Nature it must live by its form, and must DIE, unless it can at all times keep itself alive: but under art, it need not die, but may live, whether its organs are good or bad, useful or useless. Such forms as many of those produced by art could not exist for a day in a state of Nature. For under art, useless or incipient structures can be added up, cumbrous, futile, or even positively injurious though they should be: but under Nature, not so: it is IMPOSSIBLE.

V.

Consider, for example, the organisation, 'hippopotamus,' which is the type of a class.

Animals that live by inhaling and exhaling *air*, and yet pass much of their time *under water*, MUST NECESSARILY possess organs peculiarly constructed so as to enable

them to do this with impunity. Submerge an ox or a sheep, and it will speedily cease to be an animal at all. We find, accordingly, that all such animals—as the whale, seal, crocodile, walrus, hippopotamus, &c., possess apparatus guarding their interior against the fatal consequences that would otherwise instantly result from going under water. "When the crocodile dives, the nos-"trils are closed by valves, a transparent "membrane is drawn over the eyes, and "the ear, which is a horizontal slit, is shut "up by a moveable flap of the skin."

Go to the Zoological Gardens, and watch the organisation 'hippopotamus' at work. Possibly on arriving at his cage, you will find him 'at home,' under water. Presently you will see his huge head rise to the surface and emerge: at that moment the two great nostrils (great, but small relatively to his bulk) open, and discharge a blast of

air: the next instant they are again tightly closed, and down he goes again.

Now, consider this matter. How is it POSSIBLE for such an organ as this nostril to come into being gradually, little by little, by the accumulation of increments? Is it not clear, certain, necessary, inevitable, undeniable, that to be efficient, to gain its object, it *must* have arisen, not piecemeal, but all at once, and abruptly? Is it not mathematically evident, that slight successive increments could never have formed this organ, for in incipient stages it would have involved the instant death of its owner?

The difficulty, for Darwin, is insuperable, but no glimpse of it ever entered his head. Whenever, for example, it was objected to him, that any given organ, as, e.g., the eye, could not have originated by 'Natural Selection,' his invariable answer was, to look about in Nature for *gradations* in eyes: an

answer which only shows how curiously unable he was to see the point of his own theory. Putting aside the *ignoratio elenchi*—for even if there *are* gradations in eyes, that does not prove in the least degree, that they came about by 'Natural Selection,'—the irrelevance and futility of the reply escaped his attention, simply by reason of this particular instance. With many organs it is not readily apparent, because it is not obvious that in an incipient state they would involve the instant death of their owner. But the truth is beyond denial in the case before us. How could any hippopotamus exist under water for a moment with an 'incipient' nostril? It is obvious that a 'hole' cannot begin gradually: the moment that there is a hole, there is a hole: the water must rush in. Nostrils that open in air, and close in water, could not possibly originate gradually: they must have arisen

abruptly. There is no escape: the necessity is absolute. And as with the hippopotamus, so with the other animals of the kind, whose means of attaining the same end [f] are often far more elaborate. As, e.g., the whale.

A similar, but otherwise very different, case, is the epiglottis, which in animals that have it is a sort of trapdoor, preventing foreign bodies from entering the windpipe. What happens when, as occasionally takes place, they do, everybody knows by experience. And now, again, how is it POSSIBLE for such an organ to arise, except abruptly? How could 'Natural Selection,' or slight successive increments accumulated by the survival of the fittest, have originated an organ, without which in its complete con-

[f] Thus J. G. Wood expressly compares the *water beetles*, in this respect to the whales and seals among mammalia. (*Insects Abroad*, p. 70.)

dition its owner could not have survived for three days?

Advance, now, another step; consider, not any single organ, but one of the innumerable cases of organisation, where several organs combine to effect a common end: as, e.g., the very commonest of all common animals, the garden spider. A man coming forward with a theory claiming to account for the origin of all organisations, a theory based on the meditation of a lifetime, which breaks to pieces on the spider, can scarcely be acquitted of philosophical insolvency. And yet, what is a spider? A combination of organs, each without the other worse than useless: a combination that cannot continue to exist, deprived of any one component part: for one part produces the raw material, which another spins into threads, which again are manipulated by others (in a way impossible to any other animal; for

only the spider can handle its own threads); while still others deal suitably with the prey craftily captured by the web. The whole organisation lives by the mutual co-operation of its several parts, each of which is as absurd without the other as a key without a lock, or a corkscrew without a bottle. Take away one, and the others must die. And how in the name of common sense is it POSSIBLE for slight successive variations to add up into a combination of which each part presupposes the others [g]?

To this '*deduction from phenomena*,' necessary and inevitable, Darwin's only possible and wholly conjectural answer is an abuse of scientific method: the hypothetical as-

[g] Nothing would be easier than to expand these instances into a volume. But a vast accumulation of superfluous facts adds nothing to the strength of a good argument, though it may, and often does, browbeat a timid reader into accepting a bad one by the material brutality of quantity rather than quality.

sumption, that a long chain of incipient and relatively imperfect organisations led up to e.g. our spider. This proceeding is disguised under an expression resembling scientific modesty; '*the imperfection of the geological* '*record*.' But in the first place, there is not a particle of evidence that such a chain or series of creatures ever existed. They are a pure figment: an imaginary line of beings conjured up out of nothing to support a theory impossible without them. But this is not all. It is mathematically impossible that such a series can ever have existed [h]. For parts reciprocally presupposing each other can never have existed alone. And yet, although Darwin knew well enough that, if any organs existed which could not

[h] As will be shown still more irrefutably on a future page. Observe, that on Darwin's theory, such a series is absolutely *necessary*. But it happens to be *impossible*, which is very awkward for the theory.

possibly have arisen by means of 'Natural Selection,' his theory was out of court, he seemed constitutionally incapable of comprehending, what the slightest meditation on mutually implicated organs ought to have taught him.

His theory is palpably impossible, in itself. Yet passing by this, ask him for evidence, and what does he do? He replies by I. conjuring up a long line of fictitious beings that could never have existed, covering this absurdity by a euphemism, 'the imperfection 'of the geological record': and II. by pointing to the results of *artificial* selection. He supports *impossibility* by *imagination* and *ignoratio elenchi:* by facts that are either fictitious or irrelevant. The breeder, as Darwin knew better than any one—the marvel is, that he could be so blind to the significance of his own facts—the breeder could effect absolutely nothing, could accumulate no

variations, if he copied Nature, and allowed all his animals to mix freely together, by which all incipient variations would be, as they actually are in Nature, obliterated in the germ. They never get any further, in Nature, than the preliminary appearance. And yet, he actually sees no harm, nothing unscientific, in adducing *artificial* in proof of '*Natural*' Selection: in arguing, that *because* man achieves cumulative results, by carefully *preventing* Nature from having her way, *therefore* her way and man's way are the same! And to this kind of logic the world erects statues.

VI.

Yet this theory; this explanation of facts by figments, power by impotence, coexistence by succession, Nature by impossibility; this theory, which is in reality a pure scienti-

fic absurdity, was nevertheless, such was the low state of logic in its day, a gigantic success. Four things combined to secure for it the favour of the world, and to elevate its originator to the rank of a scientific deity.

I. It fitted exactly, as we have already seen, into fashionable theories of geology, being in fact nothing else than the further application of those theories, the completion of their scheme, by subjecting the plants and animals to the same treatment as the rocks[1]. All things in Nature, even man himself, were now placed upon the same footing: all alike were held to have arisen by slight successive increments accumulated in vast periods of time. Thus the theory found, in one aspect, its battle half won.

[1] Even the rocks cannot be explained on Lyellian principles: but the absurdity of endeavouring to account on those principles for *organic* forms is infinitely greater.

Geologists who were busy explaining all geological phenomena by accumulated increment received 'Natural Selection' into their bosoms as if it were, as indeed it was, their own child. They saw, in the theory, their own face in the glass.

II. But further, Darwin presented his theory mixed up and confounded with another, which has nothing whatever in common with it, and was not originated by him. This is, the hypothesis of a filiation in organic forms, the theory that the later arose out of the earlier by natural descent. This theory, an inevitable deduction from the broad facts of geology[k], is in a manner rendered compulsory by the resemblance of earlier to later forms, closer in proportion to their approximation in time: and was

[k] It is quite impossible for any one not blinded by preconceived theories to consider the large facts of geology without having the theory forced upon his mind.

originated in modern times by Lamarck. The weak point of Lamarck's theory was, that he could not give a satisfactory explanation of the *modus mutandi:* show *how* the metamorphosis was effected, *how* one animal became another, *how* a new organ could actually arise.

Now this *how* is just what Darwin claimed to solve, by his theory of 'Natural Selection.' He himself thought that he had discovered the solution, and for a while the world was persuaded to think so too. Hence his deification. But it was a mere delusion on both sides.

When Darwin published his *Origin of Species*, as the book itself, as well as his letter to Lyell, *a propos* of being '*anticipated*' by his '*co-discoverer*,' Wallace[1], shows, he

[1] Who has recently cast a strong light on the scientific quality of his own mind by some astronomical vagaries that have staggered his admirers. The ravings of an old woman

obviously believed that he really had, in 'Natural Selection,' made *the* great discovery. But after his '*discovery*' had been for some time before the world, there came to him, mainly, as it should seem, from the perusal of a single article in a review, a dim suspicion that his 'Natural Selection' was not all that he originally took it for. His position was a little awkward. Having announced to the world a great discovery, the ripe fruit of twenty years of laborious meditation, to announce that it was all a mistake would be a step from the sublime to the ridiculous. But he was far, even now, from realising the intrinsic futility of his theory. Nevertheless, he attempted to change his ground, and withdrew a little from his '*creative idea*.' This was indeed to kick away the ladder by which he had

in a lunatic asylum would be wisdom in comparison with the latest views of this eminent philosopher.

risen. 'Natural Selection' made his fortune and raised him to the skies, and by it he stood or fell. But in the sixth edition of his *Origin*, he says: "As my conclusions "have lately been much misrepresented, and "it has been stated that I attribute the "modification of species exclusively to Na- "tural Selection, I may be permitted to "remark, that in the first edition of this "work, and subsequently, I placed in a "most conspicuous position, namely, at the "close of the Introduction, the following "words: I am convinced that Natural Se- "lection has been the main, but not the "exclusive means of modification. This has "been of no avail. Great is the power of "steady misrepresentation, but the history "of science shows that fortunately this power "does not long endure."

It is a thousand pities that criticism could not induce Darwin to reflect a little on the

power of his own principle, instead of reflecting on the *power* of misrepresentation which was no misrepresentation at all. For

A. Though *a single line* at the tail of the Introduction was no doubt in *a most conspicuous position*, there was another place, far more conspicuous, which unfortunately did not occur to him — the title-page; on which we read, in large capitals, on all editions of his book, the words: *On the Origin of Species*, BY MEANS OF NATURAL SELECTION. What does this mean? It means, as every page of his book shows, that Natural Selection was Darwin's trump card, his great idea, his passport to immortality. Yet here we find him adopting a tone of injured innocence, because, with absolute justice, people judge him by his great idea. The thing is utterly preposterous. He announces "Natural Selection," and the world falls in adoration at his feet:

then, when wicked people begin to canvas his great idea, and pick holes in it, he exclaims: O, that is not my position at all: that is *misrepresentation.* But you cannot both eat your cake and have it. If you mount to heaven *by means of Natural Selection,* you must fall with it too. It is ludicrous to suppose that a man is to be worshipped as a creative genius on the strength of an idea from which he subsequently endeavours to withdraw. If 'Natural Selection' is nonsense, what becomes of Darwin and his *Origin of Species?* The theory turns out to be a gigantic blunder: he has discovered nothing at all: we are thrown back upon Lamarck. For

B. The real irony of his complaint is that notwithstanding his partial disclaimer of 'Natural Selection,' he has still no suspicion of the truth as to that theory. He still holds it to be the *main* agent. For to

the very end of his life, he never saw the point of the absurdity, being deceived himself, as others are still, by a confusion of thought due to a want of analysis.

III. For the third cause of his success was, and still is, the deceptive snare in the phrase 'Natural Selection,' which is at once a mere truism and an absurd fallacy: most people, including Darwin himself, swallowing the fallacy in the truism.

The truism is, that in any struggle for existence, the fittest survive: the survivors being, *ipso facto*, the fittest: truly a marvellous discovery! Then, it being first laid down that the *fittest* survive, a thing which nobody can deny, the term *fittest* is illegitimately narrowed in meaning, and those forms are always assumed to be the *fittest*, that possess, and because they possess, some infinitesimal variation. This infinitesimal variation is arbitrarily supposed to bestow upon

its possessor the qualification of being *fittest* in every struggle, and decisively to determine his *survival* in all struggles throughout life (against all other contingencies or endowments whatever), and then, notwithstanding intercrossing (which is quietly disregarded), to be handed down to his descendants, and necessarily determine *their* survival in the same way, *in sæcula sæculorum*, increasing like a snowball as it rolls on, till ultimately, after æons of *survival* determined by the infinitesimal, there arises a new organic and specific form—the spider, for example. Poor little arachnid! how did you manage to survive during all those æons while your organs were '*accumulating*'? And what were you like? And were the flies, your future prey, '*accumulating*' along parallel lines, so as to be ready to jump into your web exactly when it was made? What an astounding coincidence! Yet there is something still

more astounding, and that is, the simplicity of a world, in which the author of such a theory can be regarded as a scientific genius.

IV. Finally, Darwin's cause was greatly served by the rancour of the theological opposition. Hence arose the idea, still obtaining in certain circles, that the only objections to his theory were dictated by theological considerations: 'science' being on his side. Yet no theological dogma was ever more absurd than Darwin's 'Natural Selection.' *Credo, quia absurdum* might be written on his tomb.

And yet, even now, in books, and newspapers, and magazines, and society, people speak of Darwin, as if he had invented geology and created biology! as if, till he appeared, no one had ever heard of evolution! as if his 'master thought' and 'creative originality' had produced all the intellectual stir in the nineteenth century! Whereas, in

truth, all the essential facts of geology, and their evolutionary significance, were known and proclaimed, before the *Origin of Species* had ever seen daylight. Darwin is ridiculously and most unjustly credited with the ideas and discoveries of other men (some of which he did not even understand), and made the intellectual *fons et origo* of a movement, which was not due to him, which he did not cause, but only exemplified, and which would have come about as it did, even if he had never been born. Against this immolation of other men's reputations on Darwin's altar, it is high time to protest.

VII.

For what, in point of fact, does the world owe to Darwin? It was long ago said by Bruno, that Aristotle owed more to the Uni-

versity[m], than the University to Aristotle. But with far greater justice, with literal truth, we may say, that Darwin owes far more to the world, than the world does to Darwin.

Are we obliged to Darwin for the idea of evolution? Not at all. By one of those freaks of historical caprice in which Fortune delights, just as America immortalises the name, not of Columbus, but of that commonplace pilot, Amerigo Vespucci[n], so the New World of evolution is christened Darwinism, and by reason of the temporary success of his 'Natural Selection,' Darwin gets the credit of discoveries that he not only never made, but did not even understand.

I. Evolution, properly so called: that constant and universal unfolding of the po-

[m] Of Paris.

[n] The only thing off beaten tracks that Amerigo Vespucci has a doubtful claim to have discovered is New Georgia. See Karl Frickers' *Antarctic Regions*.

tential and latent into the actual and apparent: that realisation of the embryonic which is the soul of Nature and the core of philosophy, was discovered — the greatest discovery that was ever made by man — by ARISTOTLE: and Darwin, so far from discovering it, never even seems to have heard of it, does not understand it, and contradicts it: his 'Natural Selection,' instead of explaining the actual by the possible and potential, being a ridiculous endeavour to explain what is actual and natural by what is impossible. This is what that great anatomist, Owen, meant, though he did not explain his meaning well, in opposing Darwin, yet maintaining what he called Derivation. According to Owen, who was not wholly ignorant of animal organization, Darwin's theory was only fit to be "*foisted on poor working men*": it was, that is to say, an Idol of the Market Place,

Huxley its mob-orator: seeing that it was founded in flat opposition to the obvious and necessary significance of the reciprocity and mutual interdependence of related parts of organisation: a theory that Owen *felt* profoundly, as Cuvier and Aristotle did before him. But what did 'Darwin's bull-dog,' Huxley, or his audiences know or care about Aristotle or potentiality? As if they had anything to do with nineteenth century 'science'!

II. But if, improperly, we employ the term Evolution to denote the theory, that species originate by descent from earlier forms, or the mutability of species as opposed to the theory of their fixity, then its name is not Darwinism, but Lamarckism. And surely it is enough to make Lamarck rise from the dead, to see that very theory which got him in his own day little but abuse, now quietly credited to another man.

But Lamarck could not explain the *modus originis?* Neither could Darwin: nay, his attempt at explanation is worse than Lamarck's. For while Lamarck's is only unintelligible, Darwin's is impossible. And why, simply for having made an absurd attempt to explain Lamarck's theory, Darwin should get the credit of originating it to the extent of supplanting Lamarck altogether, it is not easy to understand.

III. But there is another man, who has been unjustly thrown into the shade by the over-valuation of Darwin, and that is the author, originally anonymous, of the *Vestiges of the Natural History of Creation:* Robert Chambers. Chambers was a literary philosopher, rather than a man of science. Nevertheless, this is an instance of the old adage, that reforms must come from without: for it was Chambers and his *Vestiges* which really did what Darwin is popularly sup-

posed to have done. It was the *Vestiges* which first laid the axe to the tree, which cut at the root, and decisively determined the fall, of the old traditionary 'creation by *fiat*,' and sowed in the public mind the seed of evolutionary ideas. After Chambers and his *Vestiges*, the real work was done: he showed the way. "*When the diamond pin*," says Kalidas, "*has made the hole, even the cotton thread can get through.*" Chambers was the pin. He bored a hole in the wall, and light broke into the dense darkness of the early Victorian era. The rest was only a question of time. And, moreover, though he was not a professional man of science, which is one reason why the men of science first opposed and pooh-poohed him, and subsequently passed him over in favour of one of their own fraternity; and though his book exhibited a certain amiable enthusiasm that led him to countenance rash

speculations, nevertheless *on a les defauts de ses qualités*, and his book has two solid claims on the esteem of posterity. Chambers was the first writer, not only in England, but in the world, to gather up the scattered rays of science and speculation—nebular hypothesis, geology, ethnology—and announce that they converged to a point, which he called Development, the upward march from low to high. Moreover, Chambers' notion of evolution was truer than Darwin's: it recognises what Darwin dogmatically denies—the organic power of Nature. For Chambers, perceiving the fact of development, but not caricaturing it, invented no theories: whereas Darwin owed his reputation to a fiction that transmogrifies the truth into error. *Hypotheses non fingo* was not the motto of Darwin. He supplanted Chambers by grafting on the certainty—geological development—a figment. According

to Chambers, the geological record, the stone-book, as he called it, exhibits a continuous rise, a ladder-like ascent, a constant gain in organisation: and so in fact it does. But Darwin's theory, so far from harmonising with geology, is at variance with it: a difficulty which Darwin, *more Darwiniano*, surmounts, by cutting his geology to suit his theory. The geological series exhibits great gaps in continuity°: but it is essential to Darwin that there should be no gaps: therefore he fills up the gaps by imaginary chains of fictitious beings that never had or could have had any existence: exactly as the old Pythagoreans invented an *ἀντιχθὼν* to make up the complement of their Ten Bodies. This is the 'science' that enabled Darwin to eclipse Chambers.

The *Vestiges* will always remain, what it

° And it *must* do so: see below, § VIII.

was, a real stepping-stone, a book marking a great stride in the education of the world. It was the *Vestiges*, and not the *Origin of Species*, that broke the spell and awoke the world from its long sleep. The clear and definite statement of development, *minus* 'Natural Selection,' is what we owe to Robert Chambers, who standing by and looking on, was the first to see, what none of the men of science of his day could see. They fell upon him, tooth and nail: and now they are all preaching his doctrine, and crediting its discovery to one of themselves; exactly as the politicians who abused Disraeli in his lifetime are now making great fame by leaves taken from his book. But though it may be news to many, it is the historical fact, that it was not 'science,' but philosophy, the scientific outsider, that discovered evolution and proclaimed it in England: and so far from initiating it, 'science' opposed it, when it

first appeared, as fiercely as 'religion' did. The *Vestiges* aroused, in the scientific world, first hostility, and then jealousy: for women are far from monopolising that animal passion. The only difference is, that women hate each other, for love: but men, for fame.

IV. What, then, do we owe to Darwin? What is Darwin's own? What is Darwinism? 'Natural Selection': a scientific and philosophical absurdity. Darwin laboured all his life, with unwearied diligence, to accumulate evidence in support of his theory: what that evidence establishes is not what he meant it to establish, but its contradictory opposite: that *Natura facit saltus*.

VIII.

It has been said, and said very well indeed, of the 'higher science' of Darwin's

day, that under a surface of excessive humility, it really consisted of the most arrogant, shallow, and uneducated dogmatism. Loudly professing to *follow* Nature, it really prescribed to her *a priori* the law that she was to follow, on pain of being denied and abused. A large number of savoury scientific professors, including some of the very highest eminence, went, and still go, to Nature, with a dogma. They said to her: You shall be nothing, if not mechanical: only a purely mechanical is a natural explanation. Nature is *mechanics*, and all else is *miracle*. Hence they strove to reduce everything in Nature to mechanical principles, because those they thought they could exhaustively understand. Hence all the ludicrous efforts constantly made to reduce forces, and especially that of gravitation, to *impact*. To philosophers of this kind, there are a larger number of natural facts

which must by hook or crook be denied altogether or explained away: for what is not mechanical and mechanically intelligible, is *miracle*. Darwin, for example, is bold enough to declare, that the only alternative to his 'Natural Selection' is *miracle*: that to believe in or recognise abrupt or sudden modifications of structure is to abandon science and resort to miracles [p]. An argument for miracles which can be strongly recommended to the theologian: the *natural* is the *miraculous!* For nothing is more absolutely certain than that such abrupt origination I. *has* actually occurred; as Darwin has abundantly proved himself. II. *must* necessarily occur, by reason of the nature of things. For, to begin with, as we have already seen, organs that mutually presuppose each other could not possibly

[p] *Origin of Species*, cap. 7, end.

exist apart, nor come into being *successively*, otherwise than together. But to pass this over: there is something more: something that Darwin never saw: and yet it is a thing so simple, that his failure to understand it, his want of insight, here alone, involves his credit as a thinker.

Had he, ceasing for an instant his Sisyphean labour of everlastingly accumulating superfluous or irrelevant facts, stopped to THINK, a very little consideration might have shown him, that the abrupt method which he brands as *miraculous* and unnatural is the ONLY way in which a new principle of organisation can or could possibly be introduced: the only possible way is the way which, from a want of analysis, he pronounces miraculous and throws aside. For gradual transition from one thing to another is *possible*, only when those two things have a common principle: otherwise,

impossible. To change a principle, to introduce a *new* principle, a *jump* is absolutely necessary: by gradual transition, it cannot be done. A principle cannot originate gradually. For example, you can have *sledges* and you can have *wheeled* vehicles, and any number of transitional variations on either principle, within its limits. But you cannot pass by gradation, by accumulated increment, from the principle of *sledge* to that of *wheel:* you must jump: no variation of *sledges* will ever produce a *wheel.* Just so, you cannot pass by gradation from *sails* to *steam,* in the navigation of ships. No variety of *sails* will ever bring you to *steam.* And so it is universally in Nature. You cannot bridge the gap between different principles of organisation. Intermediate gradations cannot possibly exist. Darwin's supposition that they could: his expectation to find them, but for the imperfection of the

geological record: in other words, his whole theory of 'Natural Selection,' which supposes the possibility of an impossibility, infinitesimal gradations between all the forms in Nature past and present: his identification of abrupt origination with *miracle:* all this only proves to demonstration that neither he himself nor his disciples know what thinking means. Every new principle of organisation in Nature *must* have come in with a jump, and cannot have originated in any other way. As, for example, to revert to our former illustration; the water-defying apparatus of animals that live by breathing air could not possibly have arisen by degrees. This is so obvious that it is difficult to understand how any one could avoid perceiving it: but there are countless cases of organisation, the commonest things in Nature, to which Darwin never paid attention. And really, it is almost to insult

the intelligence of the reader to multiply instances. How did the wings of birds and bats and insects originate? By degrees? The very notion is ridiculous. With wings 'in the incipient stage' (to borrow the nonsensical 'Darwinism' based upon nothing in Nature, for nothing in Nature is 'incipient,' or ever has been), wings that were no wings, the animal would never have 'survived': still less could it ever have left off trusting to good legs and turned for its safety, during 'the period of transition,' to 'incipient' wings. The life of winged beings absolutely depends on the *power* of their wings, as, e.g., bats or bees or butterflies: and often their prey flies nearly as fast as they do themselves.

And so it is universally. There is, in Nature, infinite variety. But whenever you get back to the principle, the *fundamentum varietatis*, of which the varieties are all

exemplifications, then there is an end of gradation, actual or possible: then comes a blank and a gap: and necessarily: for a *jump* was then obligatory, and it *must* have taken place. There is no passage from organisation on one principle to organisation on another by degrees. Nature cannot do it: she *must* jump: *ergo*, she *does*. NATVRA FACIT SALTVS. Darwin denies it: for it would destroy his theory: but he is obliged forcibly to shut his eyes to facts adduced by himself. Moreover, it is useless to deny it: for whatever is, is: and what is impossible, does not happen.

And therefore, if we know, beyond all possibility of denial, A. That *jumps* have actually occurred, as Darwin knew himself. B. That they *must* occur, Nature being impossible without them: which Darwin did not understand: it is mere puerility to denounce as *miraculous* that which is *natural*,

because it does not harmonise with your *a priori* scheme of what Nature is to be. Such a 'scientific' method, which under a show of humility is that of Darwin and his school, and especially of Weismann, is simply to deny *ex cathedrâ* that organic POWER of Nature, which is really above and beyond all denial, merely because you do not understand it: it is to make your limited insight and information the standard of Nature's power and possibilities. But Nature laughs at such philosophical incompetence, masquerading in the garb of science. What she is, she is: what she can, she can: true Science will hold up to her a pure mirror: but 'Science' which will not, must get another name. Of all amazing scientific assumptions, the most amazing is that which underlies the creed of Darwin and his school: that we are in full possession of all the principles by which Nature is to be explained, and therefore in

a position to ban as miraculous every power which we do not understand. But that which can only be effected by power cannot be explained by impotence. Darwin denies Nature: but Nature gives the lie to Darwin: and she will endure longer than his reputation, which rests only on the sand of a logically uneducated public opinion.

IX.

Let us look without prejudice at this matter, this question of the origin of the inhabitants of the earth, in the light of what we actually do KNOW.

We know (thanks chiefly to William Smith) that during a long series of ages, of unknown duration, many different kinds of animals and plants have successively appeared and disappeared. And from certain similarities and resemblances and other in-

dications, we argue, that there is between them a real family relationship, a true genealogical filiation: that the later were lineal descendants of the former; reasoning inductively from some cases when we seem to see, though dimly, the line of descent, to all the others, the vast majority, where we cannot see it at all. But when we attempt to go into details, the way is blocked as it were by a door of iron. As if on purpose to mock us, in exactly the two points of all the most interesting, the most vital to be known, geology is dumb. What is the meaning, and what were the causes, of those mysterious periods of discontinuity, the geological BREAKS? By what organic alchemy, and under what conditions, assuming that the later forms issued from the loins of the earlier, was the actual metamorphosis performed? For by heaven and earth! it is very strange. Who ever saw an animal give

birth to some creature other than itself. They breed so *true*. And yet, somehow or other, somewhen or otherwhen, the thing must have occurred, if descent has been unbroken since the beginning. And it is certain, that the secret is somehow or other connected with those weird blanks in the record, the geological breaks. For after a blank, we see that a change, sometimes prodigious, has taken place in the life: new forms have replaced the old: and we stand before them with a feeling difficult to analyse, but akin to awe. How came those old Cambrian, Silurian, Carboniferous periods to begin or end? By what natural magic were produced in order the fishes, reptiles, birds, and mammals, to say nothing of insects, the most perfect, the most various, the most incomprehensible of all [q]?

[q] Observe that insects appear very early: in the Silurian age. See *Goss On the Geological Antiquity of Insects*, p. 6.

Darwin's almost superhuman reputation rested on the fact that he was popularly believed to have discovered the answer to these questions. Pure delusion! Not only was he as ignorant of the answer as the rest of the world, but worse: for pure ignorance is better than the false conceit of knowledge. Darwin both went himself, and led others, astray, and has to a melancholy degree perverted scientific endeavour: teaching his disciples to look for the solution of natural problems in a wholly erroneous direction: thus it is that at present we see almost everybody desperately striving to force all the facts of Nature into harmony with 'Natural Selection,' ignoring the organic power that really effects the result. Nature does her work in one way: Darwin and his pupils strenuously labour to explain it, in the most far-fetched, round-about, and perverse manner, in another. Nothing can cure

this disease, but the extirpation of the *bacillus*,—the exposure of the Darwinian myth.

So far from solving the problem of the origin of species, Darwin did not even correctly approach it. He came to it, by reason of a want of philosophical education, and a deficiency in logical power, with two fundamental misconceptions, which futilised all his endeavours beforehand. He was wrong *a priori* in two points: I. The conditions of the process of origination. II. The essence of Nature, the organic power which does the work.

I. Darwin was a Lyellian, and was therefore, like all Lyellians, doomed to failure in his geological solutions by reason of a radical error in his conception of geological *time*. Lyell conceived time as two parallel lines, along which, however far you might go back, you never got any nearer to the beginning: thus the present was but the

type and model of the past, both being, as it were, merely *loci*, points at which you might cut infinite time. For according to Lyell, geological time was practically infinite: he expressly compares it to astronomical space, overlooking the essential objection (that space is *all*, whereas the earth is only a very little *one*). Hence he threw back present conditions into all past periods, and sought to explain the past as though but another present. This is the essence of Lyellian geology. The old man is identified with the child. What Lyell did not understand, and Darwin followed him, was, that the geological process is, not a mathematical and infinite, but an organic process, like the life of an animal or a tree, a thing which runs a course, with a beginning, a middle, and an end: not comparable to parallel lines, but rather to a cone, lines starting from a point and diverging; or to a spiral,

such as we see in celestial nebulæ and sea shells: so that the true geological conception is not that of a constant identity of conditions, which is *impossible*, but on the contrary, and this is *necessary*, a constantly changing development or unfolding of the implications of the definitely determined starting point: and thus the present era is not only not the same as the past, but beyond a doubt and by an inevitable necessity, utterly unlike it: the unlikeness growing greater, the further back we go into the chronological abyss. And from this it follows: first, that our ignorance of the original and early conditions must inevitably make all speculation as to earlier periods conjectural: and secondly, that the efforts of Lyell, Darwin, and others of their school to explain the past on present principles are essentially vicious in their heart, and predetermined to be erroneous. To insist, as

the necessary scientific preliminary, that the past shall and must be explained in terms of the present, because we know the present and not the past, sounds at first like the truth: but it is in reality the antipodes of science: it is precisely analogous to the demand, that true science requires the child to be explained in terms of the old man, because we know only the old man. But on the contrary, if we really have no knowledge, save of the old man, then instead of ridiculously endeavouring to get an explanation of the child in terms of the old man, and calling this science, let us rather frankly say at once, that science is here unattainable, and that knowledge of the child is beyond our ken. The wildest conjectures, though wholly unscientific, may possibly be true, or near the truth: but logical reasoning on Lyellian principles *must* issue in what is false: because it is

mathematically certain, by the nature of things (which forbids any heated combination of elements in colder surroundings to remain in the same condition, but compels it to change), that the past was, not *like* the present, but wholly *unlike* it. For the earth, though not, as the old Stoics thought, an animal, yet resembles an animal in possessing a quasi-organic existence, a beginning, and a fated end determined by the beginning, and a period of ordered passage, through change after change, from one to the other. This is the true evolutionary view, discovered as a philosophical principle by Aristotle: and to ignore it is to stumble on the threshold, which is just what Darwin did. Darwin belongs to the pre-Aristotelian period: he attempts to explain, without understanding the philosophy of origination, like the early Greek philosophers. He misunderstood the *potentiality* of the geological

process, having learned from Lyell to regard it as a permanent mechanical uniformity. Thus he cut himself off *a priori* from the possibility of reaching the truth.

II. But Darwin fell into a still more fundamental error in another point. Just as he misconceived the essentially organic nature of the geological process, so in exactly the same way he arbitrarily denied and ignored the organic power of Nature herself. His theory is an endeavour to explain Nature *per impossibile*, to refer organisation to the mechanical accumulation of successive increments, impotent to produce it: he treats *animals* as if they were *rocks*, lumps of matter: he will not admit the formative power of Nature. For him, there is no organic power: there are only mechanical powers. Like nearly all scientific men in the nineteenth century, whose master of method was that unfortunate being J. S.

Mill[r], Darwin was not aware, that to explain Nature it is not sufficient to be always accumulating her facts: you must, above all, make a thorough preliminary analysis of the causes and principles to which you propose to refer them. You must thoroughly comprehend her *background*, before you can satisfactorily investigate her particulars. But this is 'metaphysics': and therefore, though it is a scientific *sine quâ non*, though science cannot exist without it, it is tabooed by 'scientific' men, mutually applauding each other, and never perceiving how much they are doing to discredit their own cause. For nothing

[r] I consider the authority of J. S. Mill, and the fact that his *Logic* and *Political Economy* were and still are text-books in the University of Oxford, to be a national disaster, and almost equivalent to destroying English intelligence in the germ. A generation which learned its logic from Mill was well prepared to receive Darwin's speculative guessing as a new revelation.

injures the cause of science so much as the want of a philosophical basis in its own champions: science loses credit and authority, when scientific men cannot even attempt to discuss the principles of science without betraying their want of training in their own business. The mere accumulation of facts without any critical insight into principles and causes is just as likely to lead men wrong as right. So it was with Darwin, who seems to have had no philosophical education of any kind: except what he could pick up from the perusal of J. S. Mill. All his familiarity with the facts of Nature did not save him, accordingly, from falling into a gigantic error as to the essence of Nature herself: an error which is not the less an error because most of his contemporaries shared it.

Nature—not in that sense of the word in which it is synonymous with the Universe,

All; but in the sense of the Power which we see exhibited above all in the organisation of animals and plants, and generally in every process that starts from a *beginning*, passes through a series of changes, and ends with an *end* completing the process, as e.g. from the egg to the owl—this Nature is not a mechanical power, and cannot be explained on purely mechanical principles. It works to an end. There is, in the process, mechanics and mechanism: but this does not exhaust it: there is something more.

Nature, as *Natura Naturata*, to borrow an old expressive barbarism, is a vast accumulation of organisations, instruments, organs that effectuate ends: as *Natura Naturans*, she is the creative process of their generation, and the power that does the work.

Now I say, with Aristotle, that this power is not mechanical, but organic. The mistake of Darwin, of Lamarck, and of most

modern scientific theorists is, that, preoccupied by mechanical problems, they refuse to see, deny, nay, scoff at the very idea of such an organic power[s], because they do not understand it. They ban it, as *miraculous*. But let us consider the question. The first principle of science is to recognise facts: and there is more in Nature than is dreamed of by these philosophers.

There is, in the process of organic origination, an element that lies beyond and outside any possible mechanical explanation. The mechanism of the process does not and cannot explain the process itself: it explains its action within limits, but not its *raison d'être:* as, for example, the mechanism of the clock does not explain its origin, the wherefore of its being: it can-

[s] The reason is, that they are biassed against theology. But theology has nothing to do with it. Theology or no theology, let us recognise what Nature is.

not tell us what it is. To know this requires an appeal to something other than the mechanism: to time. Similarly, the *raison d'être* of every organ, and of all organic origination such as terminates in an end, lies in its totality, and that totality cannot be explained, and cannot have arisen, piecemeal. No organ, the essence of whose operation lies in it as a whole: no combination of organs, the essence of whose operation lies in their mutual, reciprocally presupposing interdependence, can possibly have arisen or be explained by the mechanical accumulation of a series of successive increments. The attempt of Darwin argues nothing but his own lack of philosophical insight.

Let us, for example, suppose, that he had succeeded in giving a satisfactory mechanical explanation of the origin of specific forms in time. Yet it never seems to cross

his mind, that he has still to reckon with the origin of the individual animal, going on around us every day. Is that mechanical? The spider or the elephant alike arise from an imperceptible speck of matter, or more exactly, from the momentary contact of two imperceptible specks, which leaves one endowed with a *Power* that it did not possess before. Now what is this Power? It is beyond denial, that the perfect form, the spider or elephant, is determined beforehand in the originating speck. Let that process be, as such, as mechanical as you please, the question still arises: does mechanics exhaust the explanation? Is there, or is there not, a power working to an end? It has been admirably observed (by Carpenter) that what, in ordinary generation, the father and mother produce, is not a new form, structure, or animal, but only the *potentiality* of such a new form: which, in suitable cir-

cumstances, builds *itself* up out of surrounding inorganic and organic material. What a speck is this potentiality, and what gigantic formative *power* it contains! It converts into organs the appropriate material supplied to it: it works towards its own specific end. And who knows how far chemical or other changes, by slightly altering some initial principle, giving it a new turn, might not determine its formative energy in quite a new direction. Observe, now, what a powerful and peculiar influence altered climatic and other conditions have upon wild or even tame animals. See how many refuse to breed at all, and how anomalous and irregular becomes the offspring of many that do. Take a long-haired cat to tropical Africa: it loses its hair: the breed changes. Under the necessary evocative conditions, Nature internally does what is wanted to meet the case, and suit the animal to its surroundings.

Thus the *potentiality*, the *power*, *can* respond to conditions in some degree. Nature *can*, then, transmute her creatures: she has the *power*. How much has she got? How far can she go? Is any man of science in a position positively to assert that this power which can do things that we see, could not in the past under other conditions have originated the structures which it continues to perpetuate? The perpetuation is a common fact: even the modification, up to a certain point, is a fact, rare, yet not unknown: then why not origination, in this manner, but much greater in degree in the past? LIKE generally produces LIKE: but even now, LIKE can disobey its own rules: is it then so certain that under conditions favourable to the case, *like* could not produce *unlike?*

Darwin looked for the origin of species in a wholly wrong direction. Falsely conceiving both the power of Nature and the process

of geology, gratuitously and dogmatically denying, in the teeth of his own evidence, the possibility of direct modification, he sought to explain the origin of animal and other forms by the roundabout and impossible accumulation of infinitesimal increments under conditions similar to those now obtaining. But we live in relatively cold and ungenerative conditions. The hints that we gather from our own time justify us in ascribing the appearance of new forms to the self-acting organic power of Nature responding to conditions constantly changing, by what we might call, though not quite adequately, *Atmospheric Evolution.* Since the beginning, there has been, for there *must* have been, going on, a continuous, never ceasing atmospheric change, a chemical alteration of the medium of life, consisting essentially in purification, rarefaction, siccification, frigidification, segregation, differ-

entiation—a constant passage from potential to actual, synthetic to evolved, atmospheric conditions: from a state relatively thick, mephitic, hot, miasmatic, pestilential, dark, to one relatively purer and ever purer, drier, cooler, lighter, and more various. The 'lower' any animal is, the more 'poisonous' the conditions under which it can live. If a reptile, a bird, and a mammal are shut up in a close chamber with but little air, the bird will be the first, and the reptile the last, to die. And if tadpoles are kept without light, they will never become frogs. Such facts as these give us, as it were, glimpses of the past history of the world. And when we combine with this much evidence that shows how Nature instantly responds to the call of circumstances, how animals change and mysteriously assume colour or coating suited to new localities: the conclusion almost seems necessary, that

the evolution of species was determined by the progressive evolution of the atmosphere, calling into operation that organic power of Nature which we see now actually reproducing and occasionally altering species: which we know to be a fact, and which determines in the germ and is able to produce *forms* that answer to and can effect *ends*. That we do not comprehend this power is no sufficient reason for denying it.

For if it be granted, as it cannot be denied, that under peculiar conditions animals have the power of producing children to a certain extent unlike them, the only question is one of degree. How far could this power go? A question to which no answer can be returned. We simply do not know. But certainly, a power which can produce a spider or an elephant from an undifferentiated potentiality cannot be brushed aside and pronounced *a priori*,

as Darwin pronounces it, incapable of originating fresh starts and departures. Darwin attempts to make out, that each animal form must have arisen slowly, by accidental increment in a vast period of time, simply because he holds that Nature *cannot* produce them abruptly, except by a *miracle.* But his denial of Nature's power is pure gratuitous dogmatism: as Ockam said of another such assertion, *simpliciter falsa et absurda.*

Yet it is palpable, from the very nature of the case, that we never can expect to know the details: how each particular form arose: because it is *impossible* to reconstruct the conditions. Cases where we can trace a genealogy as e.g. the foot of the horse, really tell us nothing: because a horse might exist well enough with feet constructed on twenty different plans. I myself possessed a turkey which was born with feet crumpled

into balls. Yet after a while, this turkey learned how to use them, and it ran about on its stumps like Sir Hugh Witherington, better than its brothers and sisters. But this could not happen with a spider. Unless we had been there to see, we could never understand the genesis of species in cases where organisation is closely correlated in its parts. A horse could exist with other feet, but not a spider: it could not exist without just the feet it has and no others. Large animals are susceptible of considerable alteration in parts without any vital consequences: and this is one of the things that deceived Darwin: but not insects. They are far more strictly and undeniably instruments for the performance of ends. In insects, above all, Nature shows her power, and in them above all appears the ineffable absurdity of 'Natural Selection.' A little investigation of insects is

worth more than all Darwin's accumulated labour on domesticated animals. How could the humming-bird moth exist without its proboscis? How could the grub of the ant-lion[t] originate by accumulated increment? How could the jaws of the caterpillar come into being piecemeal? The theory of Darwin is the *ne plus ultra* of human stupidity. It never could have occurred, except to one incapable of understanding the corollaries of organisation: but once having occurred, it never could have been retained and defended, except by one who was capable of systematically ignoring whole classes of animal organisation, and attending only to instances

[t] The Ant-lion pupa has a pair of powerful jaws which it uses to gnaw a hole in the sand-cemented walls of its cocoon and escape. These jaws are used *only* in that operation, once and once only, and are then cast off like an old hat. Did these jaws, forsooth! originate by accumulated increment? How could an Ant-lion *come into existence* without them?

that prove nothing at all. All the domestic and artificial selection in the world is utterly worthless to support a theory about Nature which the nearest insect alone is sufficient to destroy.

X.

The proper comprehension of the foregoing arguments places the origin of man in a light wholly different from that in which it is regarded by the Darwinian.

According to Darwin, man is descended from an ape-like form *in a Darwinian way*, i.e. by imperceptible increments. Thus there must have existed a long chain of intermediate forms, from the ape-like progenitor to man as we know him. Hence the demand for a *missing link*. But now, not only has no such link ever been found, but it may be unhesitatingly asserted, that it

never can have existed. Between apes and man, there is a gulf; and just as we saw, that in introducing a new principle, Nature must jump: so it is here. I deny that language can *originate* gradually *ex infantiâ*. Once in being, it is true, it can *improve*, and rise to higher powers, like all other principles. But in all the innumerable discussions of speech and language that have seen the light in the nineteenth century, no one has ever produced a particle of evidence, rational or experimental, to show that, or how, speech could *originate* out of speechlessness. And the truth is, that it is impossible: the problem is insoluble. There is no gradual passage from the one condition to the other.

Therefore, without denying that man issued from a lower form, we may and must wholly dissent from Darwin and his friends as to how it was done. And observe, that

this makes all the difference. Man has not been mechanically accumulated out of a monkey; he never was a monkey: the monkey was never man: and when the necessary jump came, we know not how or when, man was not a monkey: he never was one. A new principle was introduced, when man in his lowest form—ὁ πρῶτος ἄνθρωπος—appeared upon the earth. It is impossible that it can have been otherwise. The confident assertions of the Darwinians on this head rest on nothing whatever but belief; they are guesses, not only without evidence, but implying a radical failure to understand, what is involved in the gap between man and lower forms. All men possess speech, language, the power of rational communication. You may *believe*, if you please, that this power could originate gradually from its negative: but

this belief is not science: it is mere philosophical absurdity. There is no potentiality of language in an animal that does not possess it. The faculty of speech, i.e. the externality of reason and its vehicle, is one of the necessary jumps of Nature, and no man knows, or ever will know, when or how it began. But man in his lowest form must have been a rationally communicating animal: and before that, there were no men. And this, I wish the reader to observe, is not a theological, it is a logical necessity. For things can develop only from potentialities: and out of the incapacity of speaking, speech can never come.

Therefore the true evolutionary view is, not that man either is, or ever was, a monkey: but on the contrary, that he neither is, nor ever was. The origin of speech and reason cannot be scientifically explained, without

a jump. The supposition that they can, is only a mark of analytical incompetence [u].

XI.

When Darwin died, I was a Westminster boy, and hence it came about that I had *ex officio* to play a minor part in his funeral ceremony. Such a crowd, qualitatively speaking, I have never seen again. The King himself, then Prince of Wales, trod—long life to him! upon my toe: for Queen Victoria was represented, if I remember rightly, by Lord Thurlow, and the Prince walked in the procession on his right hand. At that time, Darwin was but a name to me, vaguely associated in my mind, as in

[u] Darwin's attempt to explain man by 'natural selection' is his own scientific self-condemnation. It is sheer philosophical ineptitude, naked and not ashamed: he simply did not know what he was doing. But *parmi les aveugles, borgne est roi.*

that of most people now, with 'evolution,' 'monkeys,' and the 'missing link.' And as I stood in the dense throng, surrounded by all the celebrities of Europe, I said to myself: Here is a chance for the Anarchists[x] that will never occur again. If they blew up the Abbey now, they would, like Tarquin, cut off the heads of all the tallest poppies at one fell swoop. And I asked myself in astonishment: WHAT WAS DARWIN, that all this assembly of notables should come to do him honour? For the whole world seemed to have congregated together in the Abbey, to worship at his tomb. And I made a resolution, that I would solve the problem in the years to come.

And now, whenever I can, I go and worship in another Temple, that of Nature, —the British Museum of Natural History

[x] At that time, London was in excitement by reason of the outrages of dynamiters.

in South Kensington, to whose founders and perpetuators and organisers, great and small, from Sir Hans Sloane down, we all of us owe a debt of gratitude greater than we can ever repay. For here every man who chooses can master for nothing the rudiments and principles of Nature. But as often as I go in, I am suddenly seized with trembling, and a divine impulse. I feel within me a very great laughter: *je suis comme bourré de rire*——

Right opposite the door, on the stairs, about thirty feet high, or it may be more, towers a colossal statue. Not of the Founder, not of Aristotle: not of the man, who called all the particular sciences out of nonentity into being, and created the logical method of science in general that constitutes their unity: not of the man, who, two thousand years before Newton, strove without data and without mathematics to obtain an ex-

planation of the Universe in terms of gravitation, and saw that Physics was the science of motion: not of the man, who discovered and defined the true evolutionary process, and laid the foundation of natural history by zoological collections and comparative anatomy: not of the man, to whom, through the medium of the Schoolmen his disciples, Europe owes its intellectual resurrection, and any philosophical education that it possesses; for since Ockam, men have pulled down Aristotle's Parthenon to build their little barbarous huts: not, I say, of the true deity, the Incarnation of Science: but of Darwin—

And what was Darwin?

As a man, Darwin possessed a personal charm and kindly geniality that make us all his friends: and as an industrious accumulator of material in the field of natural history, serving to disprove his own

theories, he is unrivalled. As a discoverer, he discovered absolutely nothing that was not well known and publicly proclaimed before him: as a scientific thinker, he saw no harm in explaining Nature by purely gratuitous hypotheses, imaginary figments, and impossibility, simply paying no attention at all to facts that stood in the way: as a geologist, he totally misunderstood the nature of the geological process, dogmatically postulating permanence and unchanging uniformity where reason and observation combine to demonstrate progressive alteration and perpetual change, and demanding, in the interest of his theory, that the geological record shall be twisted into proving the exact reverse of what it actually does prove: as an interpreter of Nature, he misinterpreted her so monstrously, in defiance of all his own accumulated facts, as strenuously to endeavour, all his life long,

to reduce and degrade her power to impotence, to account for her inseparable simultaneous correlations by mechanical succession, to prove her animated tools, instruments, and weapons mere things of accidentally selected variation and accumulated increment, creatures of chance, like rocks, or clouds, or pyramids of sand, or heaps of snow.

And it is this curious incarnation of philosophical poverty and unscientific perversity, who is elevated into a scientific deity. A theory-blinded and arbitrary denier of Nature's organic and creative power is worshipped as a god in her own temple, every object in which gives the lie to his creed. SI ARGUMENTUM QUÆRIS, CIRCUMSPICE!

APPENDIX.

On Darwin's theory of Coral Islands.

THE psychological origin of this theory of Darwin casts a strong light on the scientific quality of his own mind.

If we examine the essay in which he presents his theory, we find, that he invokes, to explain Coral Islands, the subsidence of the *whole* oceanic area in which they are found. And if we ask, what are his grounds for making this assumption, objecting to acquiesce in his astonishing demand, he tells us, that "as whole regions are now "rising, for instance, in Scandinavia and South America, "and as no reason can be assigned why subsidences should "not have occurred in some parts of the earth on as great "a scale both in extent and amount as those of elevation, "objections" (to the amount of the subsidence) "strike "me as of little force." That is to say, that because he believes, on evidence so scanty as to be positively ridiculous[a], in slow continuous *rising* in one place, he *invents subsidence*, on a far more colossal scale, in another, to account for Coral Islands. But then, *subsidence* was one

[a] The Scandinavian elevation of Lyell has turned out doubtful in the extreme, not to say fictitious: while the S. American elevation was based on a handful of misinterpreted earthquake phenomena on the coast. From a little dubious almost imperceptible alteration on the shore, Darwin leaped joyfully to the conclusion that the *whole* continent was in process of being permanently elevated!

of the accredited Lyellian agents. And Darwin says himself elsewhere, of his own Coral Island theory: "No other "work of mine was begun in so deductive a spirit as this, "*for the whole theory was thought out on the west coast* "*of South America before I had seen a true coral reef.* I "had therefore only to verify and extend my views by "a careful examination of living reefs. But it should be "observed that I had during the two previous years been "incessantly attending to the effects on the shores of South "America of the intermittent alteration of the land, to-"gether with the denudation and deposition of sediment. "This necessarily led me to reflect much on the effects "of subsidence, and it was easy to *replace in imagination* "the continued deposition of sediment by the upward "growth of corals. *To do this was to form my theory of* "*the formation of barrier reefs and atolls*[b]."

This is what he calls beginning a work in a *deductive* spirit! The naïveté with which Darwin shows us his hand here is really delicious. *Deduction* indeed! He comes to the Coral Islands with his theory ready made, a theory of *gradual subsidence* in one place based upon *gradual elevation* (wholly imaginary) in another: this is what he calls *deduction!* Wherever he looks, he sees, because he wishes to see, *subsidence*, not because it is there, but because he brings it with him: it is in his eye. And for similar reasons, his theory was eagerly caught up by Lyell, Jukes, Dana, and others of the school. Nothing is so curiously astonishing as the blindness of these physical investigators to the necessary corollaries of their own theories. Can any human being in his senses really suppose that con-

[b] The Italics are mine.

tinuous subsidence could go on for ages in areas widely inhabited without arousing attention? It is the one thing, if true, that people *must* notice, whether they will or no.

Nevertheless, Darwin's theory reigned in the Lyellian school, for a while. Later on, after the criticism of Karl Semper (1863), some others, but especially Murray of the 'Challenger expedition[c]' (a voyage which was fatal to many a preconceived scientific idea), doubts began to creep in. Now, observe what Darwin wrote in this connection: "If I am wrong, the sooner I am knocked on the head "the better. *But it still seems to me a marvellous thing that "there should not have been much and long continued sub-"sidence in the beds of the great oceans.*" See, now, what a light this throws upon his mind. It is not a question of particular evidence: it is, with him, a question of *anticipation*, *expectation* to find something dictated by the Lyellian creed. *Subsidence* here, *elevation* there; such is the Lyellian dogma. Why not invoke it to explain Coral Islands?

This is just what Darwin did. And now, his theory of the *Origin of Species* was formed in exactly the same way. Examine the language in which he presents it. "There may have been,"—"Why should there not have "been?" — "I can see no reason why there should not "have been,"—these and similar phrases constantly recur and make up his exposition. He has absolutely nothing to offer in support of his theory but conjecture and false analogy. To argue from facts drawn from one sphere (South America, artificial selection) to results in another (Coral Islands, Nature) was the essence of his procedure.

[c] Of which a most delectable popular account is the *Log Letters* of Lord George Campbell.

Not having any facts in their own spheres to go on, he is obliged to rest his theories on facts taken from another. He *deduces* the *sinking* of the floor of the Pacific from the *rising* of South America; a *fact* which is itself only the wildest of conjectures from no evidence at all: he *deduces* 'Natural Selection' from the results of artificial breeding, results only attainable when Nature is scrupulously prevented from having her way. And this is the logic, this is the science, for which he is canonised!

Darwin's scientific method is, in short, nothing whatever but the outrageous abuse of hypothesis: *hypotheses fingere.* What *proof* is, what *science* is, is a question to which, like other scientific idols in the nineteenth century, he could have given no answer, for it is not the fashion now-a-days for scientific men to meddle with 'metaphysics.' The consequence is, that instead of Science, we get, under the name of Science, conjectural hypothesis; imaginary supposition of possible or even impossible agents, to whose existence nothing testifies, not even the facts which they are invented to explain.

EPILOGUS.

UBIQUE DAEMON.

Il y a du diable là dessous : *ubique daemon.*——Comment ! qu'est ce que vous dites là ?——Ce n'est pas moi, c'est Aristote lui-même, notre maitre à tous, qui l'a dit : *ἡ φύσις δαιμονία, ἀλλ οὐ θεία.*——Mon ami, autrefois, quand Aristote faisait des siennes, celà pouvait bien être vrai : *mais nous avons changé tout celà :* le diable est mort, et pour nous, le bon Dieu, la bonté divine——Ah ! vous parlez comme tout le monde de votre ' Dieu,' et ne l'aimez guère : ma déesse à moi, mon idole, mon Egèrie, c'est la Nature. Vous autres, vous discutez, doutez de votre Dieu : moi, comme Napoléon, j'aime la mienne : *j'aime mieux ma mie, au gué !* vivre seul avec elle, ne rien faire que la régarder, voilà pour moi le *summum bonum*, le bonheur suprême. Aussi y a-t-il vingt ans que je le fais. Et à la fin, j'ai vu, j'ai vu —— ce que tous les docteurs ès-sciences physiologiques, biologiques, hippocratiques et autres ne voient pas aujourd'hui.——Et qu'est ce que c'est que celà ?——Vous le dirai-je ? Ecoutez donc : *elle danse, la Nature : c'est une bayardère, pantomima.*——Ha ! ha ! comme vous brodez ! la plaisante idée ! mais celà ne se peut pas : c'est *impossible.* ——Impossible ! Quand je vous dis que moi-même je l'ai vue danser, sauter, bondisser, jusqu'à ce que——chut ! dans l'oreille——*j'ai pu même entrevoir ses jarretières.* Oui, c'est une bayardère, comme l'a tres bien dit, il y a trois mille ans, le vieux sage Kapila.——Ah ! je vous comprends : vous faites de la poésie : à d'autres, s'il vous plaît : ce

n'est pas mon affaire : je ne me mêle qu' à la science.—— Hé ! mon ami, que vous avez les oreilles longues ! Ainsi, *bonne poésie, science mauvaise*, c'est là donc votre dévise? Eh ! parceque MM. les professeurs font de très mauvais vers vous croyez que MM. les poêtes ne pourront faire de la bonne science ? Vous en êtes bien sûr ? Mais souvenez vous, *qu'il ne faut jurer de rien.* Et puis, comme vous connaissez mal la Nature ! Quoi ! vous ne savez pas qu' Elle est Femme, et que femme et poête s'entreaiment ? Je vous le dis: Mademoiselle Natura——car elle est à la fois Madre et Signora, Mère et Vierge, Demeter et Korè——montrera a ses amants ce qu'elle ne montrera jamais aux MM. sevères de l'École Normale des Sciences positives, qui la régardent de haut en bas en fronçant le sourcil, à travers de grosses lunettes coloriées à faire peur, mais ne lui font pas de l'amour, comme elle veut *absolûment* qu'on le lui fasse. La Nature ! Tenez, voulez vous *l'amadouer*, la faire folle de vous, la voir à sa toilette, en déshabille, même en toute sa nudité divine, sachez le bien, il faut *l'aimer*, mais l'aimer pour elle-même, et non pas, comme le font les *ologistes*, avec des vues ultérieures, pour ce qu'elle pourrait vous donner après coup, pour l'utile. Car elle est jalouse, même très jalouse ; mais mercénaire, non ! jamais ! elle se donnera plutôt pour rien, mais à cet homme seul, qui de sa part sacrifiêra *tout*, rien que pour vivre auprès d'elle. *L'essentiel, c'est l'amour.* Il n'y a pas un homme sur cent mille qui comprend, ce que c'est que l'amour. Mais qui le lui donne, elle le lui rendera——et alors ! *Alors*, hélas ! pour tout jamais, il est ensorcelé, possêdé : comme le Tanhaüser, il a goûté le breuvage enivrant de l'infini, il a bu du calice défendu du diable ; son âme s'est noyée dans l'étrange ἀνηριθμὸν γέλασμα de la vieille, éternellement jeune Venus

paienne du soir, de la mer, et de son écume : il est désormais homme perdu, fini, vaurien dans le monde, qui le tient pour fou : et comment ne pas le croire ? N'est il pas, en effet, obsédé par un rêve ? Parlez lui : il vous régarde sans entendre : il est ailleurs : *là-bas*, avec *elle*, celle qu'il aime, *la princesse lointaine :* il écoute, entend chuchotter dans le vent——c'est le son de sa voix et le frou-frou de sa robe : il voit sans cesse flotter dans l'air le courbe du sourire du coin de ses lévres infernales, rouges comme rien au monde : partout, toujours, elle est *là*, derrière le rideau : jamais elle ne le laissera tranquille, jamais ne lui donnera congé——et quand elle le lui donnât, à quoi bon ? Que faire ? N'est libre qui veut, mais qui peut, et il ne peut pas Qu'il essaie, qu'il s'en aille : à merveille ! mais il a le feu dans le cœur, et dans la tête il entend bourdonner, bourdonner, *reviens ! reviens !* Le voilà, qui va et vient, libre, affranchi, échappé ! Et tout à coup, il n'en peut mais. La furie le saisit : les hommes l'étouffent : réveillent la soif intarissable, l'inextinguible désir,——*dahin ! dahin !*—— il plante là tout, et court dans les bois, les plages, les paysages *lointains*, retrouver sa maitresse.

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