

of Jane Gould, and of Hester Pinhorn, exactly as they are presented in these pages.

Furnished with such additional evidence as these documents afforded, I considered myself to be sufficiently prepared for a consultation with Mr. Kyrle; and Marian wrote accordingly to mention my name to him, and to specify the day and hour at which I requested permission to see him on private business.

There was time enough, in the morning, for me to take Laura out for her walk as usual, and to see her quietly settled at her drawing afterwards. She looked up at me with a new anxiety in her face, as I rose to leave the room; and her fingers began to toy doubtfully, in the old way, with the brushes and pencils on the table.

"You are not tired of me yet?" she said. "You are not going away because you are tired of me? I will try to do better—I will try to get well. Are you as fond of me, Walter, as you used to be, now I am so pale and thin, and so slow in learning to draw?"

She spoke as a child might have spoken; she showed me her thoughts as a child might have shown them. I waited a few minutes longer—waited to tell her that she was dearer to me now than she had ever been in the past times. "Try to get well again," I said, encouraging the new hope in the future which I saw dawning in her mind; "try to get well again, for Marian's sake and for mine."

"Yes," she said to herself, returning to her drawing. "I must try, because they are both so fond of me." She suddenly looked up again. "Don't be gone long! I can't get on with my drawing, Walter, when you are not here to help me."

"I shall soon be back, my darling—soon be back to see how you are getting on."

My voice faltered a little in spite of me. I forced myself from the room. It was no time, then, for parting with the self-control which might yet serve me in my need before the day was out.

As I opened the door, I beckoned to Marian to follow me to the stairs. It was necessary to prepare her for a result which I felt might sooner or later follow my showing myself openly in the streets.

"I shall, in all probability, be back in a few hours," I said; "and you will take care, as usual, to let no one inside the doors in my absence. But if anything happens—"

"What can happen?" she interposed, quickly. "Tell me plainly, Walter, if there is any danger—and I shall know how to meet it."

"The only danger," I replied, "is that Sir Percival Glyde may have been recalled to London by the news of Laura's escape. You are aware that he had me watched before I left England; and that he probably knows me by sight, although I don't know him?"

She laid her hand on my shoulder, and looked at me in anxious silence. I saw she understood the serious risk that threatened us.

"It is not likely," I said, "that I shall be

seen in London again so soon, either by Sir Percival himself or by the persons in his employ. But it is barely possible that an accident may happen. In that case, you will not be alarmed if I fail to return to-night; and you will satisfy any inquiries of Laura's with the best excuse that you can make for me? If I find the least reason to suspect that I am watched, I will take good care that no spy follows me back to this house. Don't doubt my return, Marian, however it may be delayed—and fear nothing."

"Nothing!" she answered, firmly. "You shall not regret, Walter, that you have only a woman to help you." She paused, and detained me for a moment longer. "Take care!" she said, pressing my hand anxiously—"take care!"

I left her; and set forth to pave the way for discovery—the dark and doubtful way, which began at the lawyer's door.

## SPECIES.

ONE of the earliest duties and pleasures of Adam in his Paradise was the studying and the naming of the multitudes of living creatures which passed in long review before him. In these latter days, the highest and the most refined intellects have found their greatest gratification in working out the same task. They have separated all living organised things into two grand allied kingdoms—Animals and Vegetables; but, as animal life appears at first sight utterly distinct from vegetable life, the study of the first has been called Zoology, a discoursing on life; while the second is content to be designated by the term Botany (Botanology it should have been), the science of herbs.

The Animal Kingdom comprises a much greater variety of forms and conditions than the Vegetable. There are beasts of two kinds: mammals, those that have outer breasts; and marsupials, as kangaroos, which rear their young in a pouch. There are birds; reptiles; fishes; star-shaped animals, built on a radiating plan; ringed animals, as earthworms; incrustated animals, as crabs and lobsters; insects; and others. All these are subdivided into classes, orders, families, genera, species, and varieties. Thus, the genus *Canis*, which gives its name to the *Canidæ*, the great family of dogs, contains as species the fox, the jackal, the wolf, and the domestic dog. The domestic dog species branches into the varieties of hound, beagle, mastiff, Newfoundland, terrier, and other well-known forms.

Vegetables are also divided into families, genera, species, and varieties. In the *Rosacææ*, the grand family of rose-like plants, are comprised many genera, quince, apple, medlar, hawthorn; peach, plum, cherry, apricot; bramble, strawberry, potentilla, besides the roses proper. Of the genus *Pyrus*, *P. malus*, the wild crab-apple, is one species; *P. communis*, the thorny wild pear, is another. Of these two species our dessert and kitchen apples and pears are varieties.

The genus *Rosa* has many species; from the variation of certain species our garden varieties have accidentally arisen, although some of these have been artificially obtained by cross-breeding between two other varieties, or species. Varieties from species both of plants and animals are found in a wild as well as in a domesticated state. Albino, or white red-eyed rats, sparrows, blackbirds, &c., are constantly being caught. The albinos of green birds are yellow; whence our cage canary, whose wild progenitor is a green-plumaged finch. The fields and the hedgerows annually yield plants with variegated and mottled leaves; less frequently, but still occasionally, with torn or ragged leaves. Mr. Lubbock has recently demonstrated that the muscles in the larvæ of certain insects are far from uniform.

Species are universally acknowledged to be continually sending forth varieties, in greater or less number, some more frequently than others; and varieties to be varying to a slight extent; indeed, their deficient permanency is their chief characteristic. Man has often to exert all his art to render them stationary and permanent enough for his own convenience. Genera are merely bundles of species arbitrarily grouped together, and may at any time be revised, if science require. A large genus, containing very dissimilar species, may be split into two; or two very closely allied genera may be united into one. Genera can be regarded as fixed no further than the species of which they are composed are fixed, and as the judgment of scientific men shall decide to fix them.

What, then, is the nature of species—are they immutable and permanent, or do they vary? Let us call this, Question the First.

Question the Second.—What is the Origin of Species?

To these questions (the second of which is the mystery of mysteries) opposing answers have been given. The first is, that species are fixed, and do not vary upon the whole, but transmit their own identical qualities and forms to their seed, or offspring, and will continue so to transmit them to the end of time; that varieties either die out, or revert to their original species, or continue to vary within such narrow limits as not to separate them from their parent species; that cross-breeds between two distinct species are barren and are unable to reproduce an intermediate species that shall last and maintain its ground without falling back to one parent species or the other—this property is one that has been assumed to decide whether a species is a true species, or a mere variety; varieties may produce fertile offspring, and species not; and, lastly, that each species was originally and independently created, as we now see it, by the fiat of the Almighty Maker.

God said,  
Let th' earth bring forth soul living in her kind,  
Cattle and creeping things, and beast of th' earth,  
Each in their kind. The Earth obey'd, and straight  
Opening her fertile womb teem'd at a birth  
Innumerable living creatures, perfect forms,

Limb'd and full-grown, out of the ground up rose  
As from his lair the wild beast where he wons  
In forest wild, in thicket, brake, or den;  
The grassy clods now calv'd, now half appear'd  
The tawny lion, pawing to get free  
His hinder parts, then springs as broke from bonds,  
And rampant shakes his brindled mane; the ounce,  
The libbard, and the tiger, as the mole  
Rising, the crumbled earth above them throw  
In hillocks: the swift stag from under ground,  
Bare up his branching head.—  
At once came forth whatever creeps the ground,  
Insect or worm.

But geologists have discovered that the earth bears what seem to be traces of grand convulsions, in which successive sets of living creatures lie buried. Answer the First explains them by admitting the convulsions (of which the last is Noah's deluge), and by believing that each successive fauna, or animal population of the world, was called into being by a separate creative act of the Great Artificer; that every animal and plant, at its creation, was providentially and purposely adapted to the circumstances in which it was placed, and, needing no change, was susceptible of none; that a species, like an individual, might be swept away when its allotted term of existence was completed, but could hardly be altered. Answer the First agrees with the views eloquently expressed in Paley's *Natural Theology*. Authors of the highest eminence seem to be fully satisfied with the view that each species of beast, bird, insect, and plant, has been independently created.

Answer the Second (which has been gradually gaining ground and has obtained a fuller acceptance amongst a limited group of scientific men) tells us that we search in vain for the undiscovered and undiscoverable essence of the term species. Various definitions have been given; but not one of them has as yet satisfied all naturalists, although every naturalist knows vaguely what he means when he speaks of a species. Generally the term includes the unknown element of a distinct act of creation. Every one admits that there are at least individual differences in species in a state of nature; but certainly no clear line of demarcation has as yet been drawn between species and sub-species—that is, the forms which in the opinion of some naturalists come very near to, but do not quite arrive at, the rank of species; or, again, between sub-species and well-marked varieties, or between lesser varieties and individual differences. These differences blend into each other in an insensible series; and a series impresses many minds with the idea of an actual passage.

And here arises a point of considerable interest. Is it logical, or is it not, to infer that, because we behold a series of forms, there has been an actual transition from one form to that next above it? The whole dispute at issue rests on the effect which this consideration has on the mind. Some minds will accept the passage, others will not. Every one will allow that a series of plants can be made out, from the micro-

scopic yeast-plant to the branching oak; and a series of vertebrated animals, from the worm-like lamprey to the orang-otang; but not every one will admit, as a consequence, the theory that all plants are only gradual developments of a minute mould, and all animals the improved descendants of some primitive creature from which the lamprey itself is descended. In searching after the original condition of existing forms, some minds may suspect that the circumstance of finding that nature is composed of various regular series of forms, has been made to prove much more than it ought to be allowed to prove. Laplace's celebrated comparison of the nebula, in what are supposed progressive stages of forwardness, to the trees of different ages growing in a forest, has appeared to some minds as assuming too much. Certain stars called nebula, beheld with the best existing telescopes, have an ill-defined and cloudy look; others are less and less so, till we arrive at the perfect, point-like, glittering star, or cluster of stars, shining like diamonds in the sky. Hence it was concluded that these groups of suns are in a state of transition, passing from a vapoury chaos of inconceivable heat, into the coolness, arrangement, and order of our own system. But Lord Rosse builds a telescope of unprecedented power, and those cloudy stars, the imagined chaotic burning nebula, are beheld as groups of gold-dust, each grain a sun, doubtless with its attendant worlds. If what is said of Lord Rosse's telescope be true, and that the nebula are likely to prove all resolvable with improved instruments, and not to be in different stages of growth, the comparison fails, and we see how little trust we ought to put in this interpretation of a series—namely, that any one individual form must have passed in succession through those that are nearest below it in the chain. But, as the force of the argument will entirely depend on the peculiar turn of mind of the individual to whom it is addressed, it is only fair to take note of it.

Answer the Second would further suggest that life may originate, either in what is called the spontaneous generation of a multitude and variety of organised beings of the simplest class, or from a very few primordial forms into which life was first breathed by the Creator. Varieties of these would produce something more nearly perfect and more highly organised; and of these, again, the best only would survive, to be the parents of something still nearer perfection; and so on, till animated and vegetable nature became what we see around us. No grand cataclysms on the earth are needed; the fossil remains of former geological epochs are merely the dead bodies of creatures which have died out because they were overpowered or pushed aside by stronger rivals in the contest for the means of subsistence. Every existing creature is the lineal descendant of some creature that has lived before it; there have been no successive new creations at successive geological epochs. There often exist parts in an animal's organisation—such as rudi-

mentary teeth which never bite, rudimentary feet which never walk, and rudimentary wings which never fly—that cannot be explained by the final causes of adaptation and providential contrivance; therefore, the final causes of adaptation and contrivance, it is said, are inadequate to explain the peculiarities of a creature's organisation. Because it has them, it has survived during the process of natural selection; if it had not had them, it would have perished and disappeared; that is all. And so have arisen the immense variety of living creatures which we see around us.

This view is not necessarily irreligious, as it seems to be at the outset; for it does not deny the existence of a Supreme Overruling Power, although acting in a manner to which the minds of men in general are little accustomed; nor of a Sustaining and Regulating Influence, although the desired ends are brought about by contrivances which unthinking persons might call accident. But God is Continuous and Unyielding Law, and Incessant Energy, and All-pervading Life; and all those we behold around us wherever we direct our eyes. Whether we conceive many successive creative acts, or few, or only one, a creation once in existence must be sustained, not from day to day, and from hour to hour, but from half-second to half-second, without the intermission of the smallest imaginable fragment of time. But the creation which we see around us is so complicated and perfect, that it can only be sustained by an All-wise, Almighty Divinity. The greater the complexity of the machinery which is kept in action, the greater must be the energy and the untiring power of the eternal mainspring. It may be just as noble a conception of the Deity to believe that he created a few original forms capable of self-development into other and needful forms, as to believe that He required a fresh act of creation to supply the voids caused by the action of His laws.

In any case, it is clear that the innumerable species inhabiting this world have been modelled *somehow*, so as to be in possession of that perfection of structure and coadaptation which most justly excites our admiration. The *how*, religiously considered, may be a question of mode rather than of principle. Whether a wonderful adaptation of structure be effected directly at once, or indirectly by secondary causes, the perfection of the adaptation is alone sufficient to prove that it must have been effected by Infinite Wisdom. We ought not to feel greatly surprised, nor need our self-esteem be deeply wounded, if long-observant, reflective, and reverent men suggest that we have hitherto misapprehended the *modus operandi* of the Great Artificer. Instead of wondering that man's views of the Universe are so incomplete, the wonder is that they penetrate so far, and in many cases apprehend with such clearness and certainty.

We see beautiful coadaptations plainly, in such a creature as the woodpecker, with its feet, tail, beak, and tongue, so admirably fitted to catch

insects under the bark of trees; we see them in the case of the mistletoe, which draws its nourishment from certain trees, which has seeds that must be transported by certain birds, and which has flowers with separate sexes absolutely requiring the agency of certain insects to bring pollen from one flower to the other; we see them, only a little less plainly, in the humblest parasite which clings to the hairs of a quadruped or the feathers of a bird; in the structure of the beetle which dives through the water; in the plumed seed which is wafted by the gentlest breeze; in short, we see beautiful adaptations everywhere and in every part of the organic world.

How, asks Mr. Darwin, to whose theoretical views we purpose to recur hereafter—how have all these exquisite adaptations of one part of the organisation to another part, and to the conditions of life, and of one distinct organic being to another, been perfected? He answers, they are so perfected by what he terms Natural Selection—the better chance which a better organised creature has of surviving its fellows—so termed in order to mark its relation to Man's power of selection. Man, by selection in the breeds of his domestic animals and the seedlings of his horticultural productions, can certainly effect great results, and can adapt organic beings to his own uses, through the accumulation of slight but useful variations given to him by the hand of Nature. But Natural Selection is a power incessantly ready for action, and is as immeasurably superior to man's feeble efforts, as the works of Nature are to those of Art. Natural Selection, therefore, according to Mr. Darwin—not independent creations—is the method through which the Author of Nature has elaborated the providential fitness of His works to themselves and to all surrounding circumstances.

That creatures so remote in the scale of being as plants and animals are still bound together by a web of complex relations, he proves by a curious illustration. Humble-bees are indispensable to the fertilisation of the heartsease, for other bees do not visit that flower. From experiments, he also found that the visits of bees are necessary to the fertilisation of some kinds of clover; but humble-bees alone visit the red clover, as other bees cannot reach the nectar. Hence he concludes that if the whole genus of humble-bees became extinct or very rare in England, the heartsease and red clover would become very rare, or wholly disappear. The number of humble-bees in any district depends in a great degree on the number of field-mice, which destroy their combs and nests; and Mr. H. Newman, who has long attended to the habits of humble-bees, believes that "more than two-thirds of them are thus destroyed all over England." Now, the number of mice is largely dependent, as every one knows, on the number of cats; and Mr. Newman says, "Near villages and small towns I have found the nests of humble-bees more numerous than elsewhere, which I attribute to the

number of cats that destroy the mice." Hence it is quite credible that the presence of a feline animal in large numbers in a district, might determine, through the intervention, first of mice and then of bees, the frequency of certain flowers in that district!

Equally curious, and more difficult to explain, are what are called representative species. Thus we have our British song-thrush, which lines its nest with mud, and which is represented in South America by a thrush which also lines its nest with mud, in the same peculiar manner as our own. This may be called a representation at different points of space; but species are also represented at different epochs of time on the same point of space. Australia, which abounds in kangaroos and other marsupial animals, also contains abundant relics of fossil and extinct kangaroos. New Zealand possesses living wingless birds which are represented by fossil remains of the wingless birds of epochs removed from the present by an unimaginable distance of time.

For, of the elaboration of species as maintained by Mr. Darwin, not the least overwhelming idea is the lapse of time which it has occupied to accomplish. Some species have retained the same specific form for very long periods—enormously long as measured by years. The lapse of time has been so great as to be utterly inappreciable by the human intellect. The mind cannot possibly grasp the full meaning of the term of a hundred million years; and therefore it has a difficulty in adding up and perceiving the full effects of many slight variations, accumulated during an almost infinite number of generations. The belief that species were immutable productions, was almost unavoidable, as long as the history of the world was thought to be of short duration. From geology we have now acquired some idea of the lapse of time. During the early periods of the earth's history, when the forms of life were probably few and simple, the rate of change was probably slow; at the first dawn of life, when very few forms of the simplest structure existed, the rate of change may have been slow in an extreme degree. The whole history of the world, as at present known, although of a length quite incomprehensible to us, will hereafter be recognised as a mere fragment of time, compared with the ages which have elapsed since the first creature, the progenitor of innumerable extinct and living descendants, was created.

From the imperfect and contradictory way in which the past history of the species of organised life on our planet has been interpreted, some notion may be formed of the difficulty of anticipating the future. All that we can with safety presume is, that changes among the living tenants of the earth, equally important in respect to forms and habits with those which have already occurred, are probable in times to come. Some writers believe that man has, at last, "begun to reap the fruits of his tedious education, and has proved to how great a degree 'knowledge is

power; that he has now acquired a dominion over the material world, and a consequent facility of increase, so as to render it probable that the whole surface of the earth may soon be overrun by this engrossing anomaly, to the annihilation of every wonderful and beautiful variety of animated existence which does not administer to his wants." They apprehend that the multiplication and spread of the human race will have the effect of exterminating whole species and genera of wild animals, and perhaps of plants. It may so turn out, to some extent. The bustard and the wild turkey may, perhaps, one day be laid low in the same grave of extinction which has swallowed up the dodo. With railways invading Africa and Asia, it is not difficult to hear in imagination the funeral knell of the last wild elephant, rhinoceros, giraffe. Insular animals are exposed to extermination by the increase of population and agriculture, as happened with the wolves of England, the capercaillie of Scotland, the Nestor parrot of Norfolk Island, the aboriginal black man of Van Diemen's Land; but for continental faunæ a source of safety and a door of escape exist in the instincts and propensities of man himself.

Man's power of increase and the exercise of his tyranny over the wide-spread earth, are greatly checked by his gregarious tendencies. The crowds who continually stream into great cities and die there childless, are so many petty tyrants, who abdicate their share of territory in the land in favour of its natural brute occupants. If the entire populations of Paris, Berlin, Vienna, and every other great European city, were uniformly dispersed over Europe, each family located on an equal area, and living on the produce of the culture of that area—which might be the case, if men were solitary instead of gregarious in their habits—in twenty years only there must take place a perceptible diminution in the numbers of wild animals, birds, and even insects. But the great surplus of the rural population is drawn off by the temptations of town, leaving the field clear for the occupancy of brutes in default of the occupancy of men.

War is a more efficient institution for the preservation of the *feræ naturæ* than at first sight appears. The chase may be the best school for war; but war both gives full employment to the sportsman, and also diminishes his numbers. While the cat is away, the mice will play, and increase and multiply. Our battles, whether on a grand scale or in single combat, ought to be hailed, by our four-footed and our winged game and vermin, as most auspicious events. When hostile armies prepare to meet in deadly shock, the crows and ravens overhead caw and croak their approval; the rat in the hedgerow squeaks his congratulations to the fox in the brake; the bear in the pine-wood growls his deep satisfaction to the exulting chamois on the Alpine cliff. Can it be doubted that the Indian mutiny and its suppression, respited the lives of sundry tigers, lions, wild

swine, and jungle-fowl, affording them a long truce for the undisturbed rearing of numerous litters and broods? It is evident enough, that not many wild races of animals are likely to become extinct until wars shall have utterly ceased; and when that is likely to happen, we may learn by private inquiry of various European potentates, with a further reference to the powers of the western hemisphere.

#### TAKING PIRATE JUNKS.

WHERE is that large vessel going, steaming so cautiously up that calm and peaceful strait, whose transparent waters are only disturbed by the floats of her powerful paddles? It is Her Majesty's paddle-wheel steam-frigate Sampson (so to call her), groping for some of the pirates that infest the bays and creeks all along the coast of China, some dozens of whom she has lately destroyed, and she is now expecting to do a little more in the same way. The captain is standing on the bridge, with his first lieutenant and the master, who, chart in hand, is carefully conning the ship, as she pursues her way through the comparatively unknown waters. There is a low neck of land running half way across the sound, about half a mile ahead, over which are to be seen what the shrewd gentlemen above named very much suspect to be the mastheads of some piratical junks, and which junks they intend to favour with a shot or shell, as the circumstances of the case may seem to require. But hark to the cry of the leadsman in the chains, "By the deep, four!" The water is fast shoaling, and, as the steamer draws eighteen feet, the master tells the captain that we must come to anchor. The captain speaks to his first lieutenant:

"Stand by the best bower anchor for'ard!"

"All ready for letting go, sir," answers the boatswain from the nightheads; and, in compliance with another order, gives the necessary "One, two, three—let go!" with the subsequent accompaniment of his shrill pipe. There is a heavy splash, a rattle at the hawse-holes, and the anchor is down.

"Call the boatswain," hails the first lieutenant from the quarter-deck; "hands, man and arm boats."

In a moment what a rush! But all with the greatest order; in an inconceivably short space of time, paddle-box boats and pinnace are got out, and their guns in; cutters and gigs are lowered and manned, laying alongside, all awaiting the order to shove off; every officer and man is in the anticipation of a good day's work, the thought of failure or repulse never entering the heads of sailors when about to prosecute any undertaking. The wished-for word is at length given, when we all shove off and give way for the point, with a will: discipline alone suppressing a cheer. The cutters are round first, when the pirates, quite prepared, salute them with a dozen or two of shot, which come rattling about their ears, but do no damage beyond the breaking of an occasional ear or so.