

"No, no, sir; he was dead three or four years before I came here—and that was as long ago as the year twenty-seven. I got this place, sir," persisted my talkative old friend, "through the clerk before me leaving it. They say he was driven out of house and home by his wife—and she's living still, down in the new town there. I don't know the rights of the story, myself; all I know is, I got the place. Mr. Wansborough got it for me—the son of my old master that I was telling you of. He's a free, pleasant gentleman as ever lived; rides to the hounds, keeps his pointers, and all that. He's vestry-clerk here now, as his father was before him."

"Did you not tell me your former master lived at Knowlesbury?" I asked, calling to mind the long story about the precise gentleman of the old school, with which my talkative friend had wearied me before he opened the register.

"Yes, to be sure, sir," replied the clerk. "Old Mr. Wansborough lived at Knowlesbury; and young Mr. Wansborough lives there too."

"You said just now he was vestry-clerk, like his father before him. I am not quite sure that I know what a vestry-clerk is."

"Don't you indeed, sir?—and you come from London, too! Every parish church, you know, has a vestry-clerk and a parish-clerk. The parish-clerk is a man like me (except that I've got a deal more learning than most of them—though I don't boast of it). The vestry-clerk is a sort of an appointment that the lawyers get; and if there's any business to be done for the vestry, why there they are to do it. It's just the same in London. Every parish church there has got its vestry-clerk—and, you may take my word for it, he's sure to be a lawyer."

"Then, young Mr. Wansborough is a lawyer?"

"Of course he is, sir! A lawyer in High-street, Knowlesbury—the old offices that his father had before him. The number of times I've swept those offices out, and seen the old gentleman come trotting in on his white pony, looking right and left all down the street, and nodding to everybody! Bless you, he was a popular character!—he'd have done in London!"

"How far is it to Knowlesbury from here?"

"A long stretch, sir," said the clerk, with that exaggerated idea of distances and that vivid perception of difficulties in getting from place to place, peculiar to country people. "Nigh on five mile, I can tell you!"

It was still early in the forenoon. There was plenty of time for a walk to Knowlesbury and back again to Welmingham; and there was no person probably in the town who was fitter to assist my inquiries about the character and position of Sir Percival's mother, before her marriage, than the local solicitor. I resolved to go at once to Knowlesbury on foot.

"Thank you kindly, sir," said the clerk, as I slipped my little present into his hand. "Are you really going to walk all the way to Knowlesbury and back? Well! you're strong on your legs, too—and what a blessing that is, isn't it? There's the road; you can't miss it. I wish I was going your way—it's pleasant to meet with

gentlemen from London, in a lost corner like this. One hears the news. Wish you good morning, sir—and thank you kindly, once more."

As I left the church behind me, I looked back—and there were the two men again, on the road below, with a third in their company;—the short man in black, whom I had traced to the railway the evening before.

The three stood talking together for a little while—then separated. The man in black went away by himself towards Welmingham; the other two remained together, evidently waiting to follow me, as soon as I walked on.

I proceeded on my way, without letting the fellows see that I took any special notice of them. They caused me no conscious irritation of feeling at that moment—on the contrary, they rather revived my sinking hopes. In the surprise of discovering the evidence of the marriage, I had forgotten the inference I had drawn, on first perceiving the men in the neighbourhood of the vestry. Their reappearance reminded me that Sir Percival had anticipated my visit to Old Welmingham church, as the next result of my interview with Mrs. Catherick—otherwise, he would never have placed his spies there to wait for me. Smoothly and fairly as appearances looked in the vestry, there was something wrong beneath them—there was something in the register-book, for aught I knew, that I had not discovered yet.

"I shall come back," I thought to myself, as I turned for a farewell look at the tower of the old church. "I shall trouble the cheerful clerk a second time to conquer the perverse lock, and to open the vestry door."

NATURAL SELECTION.

It is well for Mr. Charles Darwin, and a comfort to his friends, that he is living now, instead of having lived in the sixteenth century; it is even well that he is a British subject, and not a native of Austria, Naples, or Rome. Men have been kept for long years in durance, and even put to the rack and the stake, for the commission of offences minor to the publication of ideas less in opposition to the notions held by the powers that be.

But we have come upon more tolerant times. If a man can calmly support his heresy by reasons, the heresy will be listened to; and, in the end, will be either received or refuted, or simply neglected and forgotten. Mr. Darwin also enjoys the benefit of the bygone heresies of previous heretics; one heresy prepares the way for, and weakens the shock occasioned by, another. Astronomical and geological innovations render possible the acceptance of doctrines that would have made people's hair stand on end three centuries ago. This is an enormous progress; for what are three or four centuries in the history of the human race? What, in the history of the world? Truth is a bugbear which is fast losing its terrors: we are getting more and more accustomed to it, and are less and less afraid to

look it in the face. But then comes the old question, "What is Truth?" Mr. Darwin believes he knows, or is on the way to know.

Charles Darwin comes of a family renowned for close observation, intellectual ability, and boldness of speculation; he is gifted with clear and passionless judgment, and with an amiable and gentlemanly disposition; it is doubtful whether he have an enemy in the world; it is certain that he has, and deserves to have, many friends. He is blessed with a sufficiency of worldly riches, and has not strong health—the very combination to make a student. He is sincerity itself, thoroughly believing all he states, and daring to state what he believes. No mental reservation is employed to dissemble the tendency of his scientific views. He has circumnavigated the globe, and beheld the manners of many men, savage and civilised; of many birds, beasts, reptiles, and fishes. He has compared living forms with those which existed on the same spot of land ages and ages ago. In his Voyage with the *Beagle* he has delighted his readers with the simplicity and the clearness with which he has explained geological changes. For more than twenty years he has been patiently accumulating and reflecting on all sorts of facts which could possibly have any bearing on the origin of living things as we now behold them existing; regardless of expense and labour, he has long searched for the truth respecting this question. He believes he has found it, and he enunciates his creed in a book which is an abstract of a larger work that will take two or three more years to complete.

But, as the tolerant spirit of the age allows him to state and to hold his belief unmolested, it also allows dissenters from his novel doctrines to declare their unbelief of them, and to manifest the hardness of their hearts by utter deafness to Mr. Darwin's most persuasive attempts at conversion. The world in general is quite unprepared to hear his unaccustomed views propounded. The propositions are so unfamiliar, that, be they false or be they true, they are almost sure to meet with a flat denial. The dominant and fundamental idea may be grand, clear, and decided. As a theory, it is complete and harmonious in all its parts, regarded merely as a theory; but, as a history of the past, and as a statement of present and future facts, its authority must entirely rest on the reader's judgment whether the proofs and the reasoning are conclusive to his mind or not. It is a question of the interpretation to be given to certain appearances and occurrences; it is a matter of circumstantial evidence. Mr. Darwin is already supported by a small party of disciples and fellow-labourers, who put faith in his inspiration; while the great majority shrink back in alarm at the boldness of his conclusions, and at the illimitable lapse of time which it unfolds before their wondering and bewildered gaze. He will hardly be surprised himself—nor will the reader—to find that the mass of his audience have ears but hear not, and eyes but see not—as he sees and understands the works of nature. Be-

fore accepting such a theory, we, the multitude, must think twice. Well, let us think twice; thinking twice never does harm.

The creed to which it is proposed to convert the world is as follows: Although much remains obscure, and will long remain obscure, Mr. Darwin entertains no doubt that the view which most naturalists entertain, and which he formerly entertained himself—namely, that each species has been independently created—is erroneous. He is fully convinced that species are not immutable;* but that those belonging to what are called the same genera are lineal descendants of some other and generally extinct species.

The modifications which species have undergone are mainly, but not exclusively, he believes, the result of a process called Natural Selection. He cannot doubt that the theory of descent, with modification, embraces all the members of the same class. He believes that animals have descended from at most only four or five progenitors, and plants from an equal or lesser number. Analogy would lead him one step further; namely, to the belief that, in the beginning, there arose some single, primitive, rudimentary, organised cell, or elementary being, which was the first parent of every living creature—that all animals and plants have descended from some one prototype. But analogy, he owns, may be a deceitful guide. Nevertheless, all living things have much in common in their chemical composition, their germinal vesicles, their cellular structure, and their laws of growth and reproduction. We see this even in so trifling a circumstance as that the same poison often similarly affects plants and animals; or that the poison secreted by the gall-fly produces monstrous growths on the wild rose or oak-tree. Therefore, Mr. Darwin would infer from analogy that, probably, all the organic beings which have ever lived on this earth have descended from some one primordial form, into which life was first breathed by the Creator.

Is it too much to say that, in the good old times, opinions like these would have been strongly redolent of fagot and flame?

Our philosophical reformer adduces numerous facts which he holds to be inexplicable on the theory of independent acts of creation. By the supposition of a migration, with subsequent modification, we can see why oceanic islands should be inhabited by few species, but, of these, that many should be peculiar. We can clearly see why those animals which cannot cross wide spaces of ocean, as frogs and terrestrial mammals, should not inhabit oceanic islands; and why, on the other hand, new and peculiar species of bats, which can traverse the ocean, should so often be found on islands far distant from any continent. The grand facts respecting the grouping of all organic beings on certain areas of the earth's surface—such as a predominance of monkeys with prehensile tails in one country, of ant-eaters and toothless animals in

* See "Species," in *All the Year Round*, No. 58, p. 174.

another, of pouched animals in another, of a peculiar modification of leaves in Australian shrubs, of peculiar aloes or agaves in America—are inexplicable on the theory of creation.

Glancing at instincts, marvellous as some are, they offer, it appears, no greater difficulty than does corporeal structure, on the theory of the Natural Selection of successive, slight, but profitable, modifications. We can thus understand why nature moves by graduated steps in endowing different animals of the same class with their several instincts. On the view of all the species of the same genus having descended from a common parent, and having inherited much in common, we can understand how it is that allied species, when placed under considerably different conditions of life, yet should follow nearly the same instincts; why the male wrens of North America, for instance, build "cock-nests" to roost in, like the males of our distinct kitty-wrens—a habit wholly unlike that of any other known bird. On the view of instincts having been slowly acquired through Natural Selection, we need not marvel at some instincts being apparently not perfect, but liable to mistakes, as when blow-flies lay their eggs in the carrion-scented flowers of stapelias; nor at many instincts causing other animals to suffer, as when ants make slaves of their fellow-ants, when the larvæ of ichneumon flies feed within the live bodies of caterpillars, and when the nestling cuckoo ungratefully ejects his legitimate foster-brethren out of the family nest.

Instincts are as important as bodily structure for the welfare of each species, under the conditions of life by which it happens to be surrounded. Under changed circumstances, it is possible that slight modifications of instinct might be profitable to a species; and if it can be shown that instincts do vary ever so little, then Mr. Darwin sees no difficulty in Natural Selection preserving and continually accumulating variations of instinct to any extent that may be profitable. His line of argument—and the whole volume is one long argument—may be summed up in this: give him an inch, and he takes an ell. Instincts certainly do vary—for instance, the migratory instinct varies, both in extent and direction, and in its total loss. So it is with the nests of birds, which vary partly in dependence on the situations chosen and on the nature and temperature of the country inhabited, but often from causes wholly unknown to us. It is thus, he believes, that all the most complex and wonderful instincts have originated; although no complex instinct can possibly be produced except by the slow and gradual accumulation of numerous slight, yet profitable, variations, requiring ages upon ages, and tens of thousands, or perhaps hundreds of millions, of generations to work them out. For Mr. Darwin assumes such an inconceivably vast period of lapsed time for the accomplishment of his theory, that it is simply not eternity, because it had a beginning.

Variations of instinct, thus acquired, become, in races, habitual and hereditary. Habit and

the selection of so-called accidental variations, have played important parts in modifying the mental qualities of our domestic animals. It cannot be doubted that young pointers will sometimes point, and even back other dogs, the very first time that they are taken out; retrieving is certainly in some degree inherited by retrievers; as is a tendency to run round, instead of at, a flock of sheep by shepherds' dogs. These actions do not differ essentially from true instincts; for the young pointer can no more know that he points to aid his master, than the white butterfly knows why she lays her eggs on the leaf of the cabbage. How strongly these habits and dispositions are inherited, and how curiously they become mingled, is well shown when different breeds of dogs are crossed. A cross with the greyhound has given to a whole family of shepherds' dogs, the lurchers, a tendency to hunt hares, rendering them invaluable to poachers. Le Roy describes a dog whose great-grandfather was a wolf, and this dog showed a trace of its wild parentage only in one way—by not coming in a straight line to his master when called.

To understand how instincts in a state of nature have become modified by Natural Selection, let us consider the case of the cuckoo. It is commonly admitted that the more immediate and final cause of the cuckoo's instinct is that she lays her eggs, not daily, but at intervals of two or three days; so that, if she were to make her own nest and sit on her own eggs, those first laid would have to be left for some time unincubated, or there would be eggs, and young birds of different ages in the same nest; which would make the process of laying, hatching, and rearing the young, inconveniently long and troublesome. The American cuckoo makes her own nest, and has eggs and young successively hatched, all at the same time.

Now, instances can be given of various birds which have been known occasionally to lay their eggs in other birds' nests. Let us suppose that the ancient progenitor of our European cuckoo had the habits of the American cuckoo, but that she occasionally laid an egg in another bird's nest by way of experiment. If the old bird profited by this occasional habit, or if the young were made more vigorous by the mistaken maternal instinct of another bird than by their own mother's care, encumbered as she can hardly fail to be by having eggs and young of different ages at the same time, then the old birds, or the fostered young, would gain an advantage. And analogy leads Mr. Darwin to believe that the young thus reared would be apt to follow, by inheritance, the occasional and aberrant habit of their mother, and in their turn would possibly lay their eggs in other birds' nests, and thus be successful in rearing their young. By a continued process of this nature, he believes that the strange instinct of our cuckoo could be, and has been, generated.

To Mr. Darwin, this explanation appears conclusive; other persons, less under the influence of a fixed idea, may observe that, with the help

of an "if" and a "suppose," there is little difficulty in explaining anything.

The occasional habit of birds laying their eggs in other birds' nests, either of the same or of a distinct species, is not very uncommon with the Gallinacæ; it is frequent with domestic hens; and this, perhaps, explains the origin of a singular instinct in the allied group of ostriches, for several hen ostriches, at least in the case of the American species, unite and lay, first a few eggs in one nest, and then the rest in another, and these are hatched by the males. This instinct may probably be accounted for by the fact of the hens laying a large number of eggs, but, as in the case of the cuckoo, at intervals of two or three days. The instinct, however, of the American ostrich has not as yet been perfected; for a surprising number of eggs lie strewn over the plains, so that in one day's hunting Mr. Darwin himself picked up no less than twenty lost and wasted eggs.

Many bees are parasitic, and always lay their eggs in the nests of bees of other kinds. This case is more remarkable than that of the cuckoo, for these bees have not only their instincts, but their structure also, modified in accordance with their parasitic habits: they do not possess the pollen-collecting apparatus which would be necessary if they had to store food for their own young. Some species likewise of Sphegidae (wasp-like insects) are parasitic on other species; and M. Fabre has lately shown good reason for believing that although the *Tachytes nigra* generally makes its own burrow and stores it with paralysed prey for its own larvæ to feed on, yet that when this insect finds a burrow already made and stored by another spheg, it takes advantage of the prize, and becomes, for the occasion, parasitic. In this case, as with the supposed case of the cuckoo, Mr. Darwin can see no difficulty in Natural Selection making an occasional habit permanent, *if* of advantage to the species, and *if* the insect whose nest and stored food are thus feloniously appropriated, be not thus exterminated.

Such ideas are opposed to the belief of philosophers who hold that the various species of plants and animals have been independently created, and have been purposely fitted and adapted to the place in creation which they were intended to occupy by an Overruling Intelligence; for it is maintained that the more complex organs and instincts have been perfected, not at once in the first-created individual, by the Hand of the Maker, but by the accumulation of innumerable slight variations, each good for the individual possessor for the time being, during an exceedingly long succession of individuals from generation to generation.

The result is asserted to have been effected in this way: there can be no doubt that species give rise to minor varieties; for no two individuals are exactly alike, but may be easily distinguished one from the other. A shepherd knows every sheep in his flock, a huntsman every hound in his pack, calling it by name; a busy-body knows every face in his village and its

neighbourhood; probably a bee knows every bee belonging to its hive. Variations are often hereditary; red-haired parents will probably have a red-haired family. Varieties of talent and bodily strength are hereditary; diseases and defects are hereditary, as is every day seen with consumption and deafness. If any animal or plant in a state of nature be highly useful to man, or from any cause closely attract his attention, varieties of it will almost universally be found recorded. Now, individual differences are considered by Mr. Darwin as the first step towards such slight varieties as are barely thought worth mentioning in works on natural history: varieties which are in any degree more distinct and permanent, are steps leading to more strongly marked and more permanent varieties; and these latter lead to sub-species, and to species. In short, all organised and animated forms are in a state of passage from one stage of difference to another; all nature is moving insensibly forwards up the slope of one vast sliding scale; the world is a never-ceasing workshop for the process of manufacturing new species of plants and animals.

Mr. Darwin believes that any well-marked variety may be called an incipient species; and herein lies the whole turning-point, the cornerstone, perhaps the stumbling-block, of his System of Nature; grant him that, and nothing can stop the career of his theory; give him that inch, and he may take, not an ell, but a hundred thousand miles of philosophical territory. Conscious of the importance of his postulate, he candidly observes: "Whether this belief" (that varieties are incipient species) "be justifiable, must be judged of by the general weight of the several facts and views given throughout this work." Achilles is a mighty man, but unfortunately he is afflicted with a vulnerable heel. Elsewhere he says: "It has often been asserted, but the assertion is quite incapable of proof, that the amount of variation under nature is a strictly limited quantity." But there's the rub. A mathematical demonstration may be impossible; but certain observers and experimenters say that their experiments and observations strongly *tend* to the belief that varieties do not vary beyond certain limits; that is the impression which their minds receive from what they see; just as Mr. Darwin's observations strongly tend to make him view all existing beings, not as special creations, but as the lineal descendants of some few beings which lived long before the first bed of the Silurian system was deposited, and to conclude thence that (as all the living forms of life are the lineal descendants of those which lived long before the Silurian epoch) we may feel certain that the ordinary succession by generation has never once been broken, that no cataclysm has desolated the whole world, and that we may look with some confidence to a secure future of equally inappreciable length.

But no human intellect, unaided by revelation, is at present able to make such conclusions as these matters either of positive proof or of positive refutation. They must remain a ques-

tion of opinion, a balancing of probabilities, in which each man judges according to his lights, the tone of his mind, and the inferences which his previous notions lead him to draw from the premises before him. Two men may arrive at contrary opinions, both reasoning with perfect sincerity of heart and desire for truth. For instance, while Mr. Darwin holds that the world has been desolated by no past cataclysm and need apprehend no future one (which is contrary to the universal tradition and belief of civilised nations), M. Boutigay, a savant of high rank in his own country, asserts, with specious and plausible argument, not only that the moon was shot out by a convulsive explosion from the earth, but that our planet may any day be seized with the throes of a universal earthquake which shall end in the expulsion of a second satellite; in which case, every living thing must be destroyed by fire. No cataclysm! Why Messieurs Adhémar and Lehon, distinguished men of science, believe that they have proved that a grand deluge must inevitably devastate the globe every ten thousand five hundred years;* that such deluges have regularly occurred during all previous time, and that such will recur again at their stated epochs; and that, although these grand deluges may not be so universal as to desolate the *whole* world, they are cataclysms sufficiently terrific to exterminate the great majority of existing creatures, and to render a fresh act of creation an event at least desirable and called for by circumstances.

To return to the theory by which independent creations are obviated. Nature is most prodigal in conferring life. More individuals of every kind, both plants and animals, are produced than can possibly survive, and there must in every case be a contest for life; either between individuals of the same species, or between the individuals of distinct species. It is Malthus's doctrine applied to the whole animal and vegetable kingdoms, with increased force; for, in this case, there can be no artificial increase of food, and no prudential restraint from marriage. Although some species may be now increasing more or less rapidly in numbers, all cannot so increase, for the world would not hold them. There is no exception to the rule that every organic being naturally increases at so high a rate, that, if not destroyed, the earth would soon be covered by the progeny of a single pair. Even slow-breeding man has doubled in twenty-five years; and at this rate, in a few thousand years there would literally not be standing-room for his progeny. Linnæus has calculated that if an annual plant produced only two seeds—and there is no plant so unproductive as this—and their seedlings next year produced two, and so on, then, in twenty years, there would be a million of plants.

As a consequence, the weakest goes to the wall; it is a race for life, with the deuce taking the hindmost. A grain in the balance will determine which individual shall live and

which shall die: which variety or species shall increase in number, and which shall decrease, or finally become extinct. The slightest advantage in one being, at any age or during any season, over those with which it comes into competition, or any better adaptation in however slight a degree to the surrounding physical conditions, will tend to the preservation of that individual, and will generally be inherited by its offspring. The offspring, also, will thus have a better chance of surviving, for, of the many individuals of any species which are periodically born, but a small number can survive. This is Natural Selection—a power which acts during long ages, rigidly scrutinising the whole constitution, structure, and habits of each creature—favouring the good and rejecting the bad. Though nature grants vast periods of time for the work of natural selection, she does not grant an indefinite period; for as all organic beings are striving, it may be said, to seize on each place in the economy of nature, if any one species does not become modified and improved in a corresponding degree with its competitors, it will soon be exterminated.

Cases of adaptation which have hitherto been attributed to design and contrivance are by this theory regarded as the result of natural selection only. When we see leaf-eating insects green, and bark-feeders mottled grey, the Alpine ptarmigan white in winter, the red grouse the colour of heather, and the black grouse that of peaty earth, we must believe that those tints are of service to these birds and insects in preserving them from danger. Grouse, if not destroyed at some period of their lives, would increase in countless numbers—they are known to suffer largely from birds of prey; and hawks are guided by eyesight to their prey—so much so, that on parts of the Continent persons are warned not to keep white pigeons, as being the most liable to destruction. Hence Mr. Darwin can see no reason to doubt that Natural Selection might be effective in giving the proper colour to each kind of grouse, and in keeping that colour, when once acquired, true and constant.

To make it clear how Natural Selection acts, an imaginary illustration is given. Let us take the case of a wolf, which preys on various animals, securing some by craft, some by strength, and some by fleetness; and let us suppose that the fleetest prey, a deer, for instance, had from any change in the country increased in numbers, or that other prey had decreased in numbers, during that season of the year when the wolf is hardest pressed for food. Under such circumstances, there is no reason to doubt that the swiftest and slimmest wolves would have the best chance of surviving, and so be preserved or selected—provided always that they retained strength to master their prey at this or some other period of the year, when they might be compelled to prey on other animals. There seems no more reason to doubt this, than that man can improve the fleetness of his greyhounds by methodical selection, or by that unconscious selection which results from

* See All the Year Round, No. 52, p. 40.

each man trying to keep the best dogs without any thought of modifying the breed.

Even without any change in the proportional numbers of the animals on which our wolf preyed, a cub might be born with an innate tendency to pursue certain kinds of prey. Nor can this be thought very improbable; for we often observe great differences in the natural tendencies of our domestic animals; one cat, for instance, taking to catching rats, another mice; one cat, according to Mr. St. John, bringing home winged game, another hares, or rabbits, and another hunting on marshy ground and almost nightly catching woodcocks or snipes. The tendency to catch rats rather than mice is known to be inherited. Now, if any slight innate change of habit or of structure benefited an individual wolf, it would have the best chance of surviving and of leaving offspring. Some of its young would probably inherit the same habits or structure, and by the repetition of this process, a new variety might be formed which would either supplant or coexist with the parent form of wolf. Or, again, the wolves inhabiting a mountainous district, and those frequenting the lowlands, would naturally be forced to hunt different prey; and from the continued preservation of the individuals best fitted for the two sites, two varieties might be slowly formed. According to Mr. Pierce, there are two varieties of the wolf inhabiting the Catskill Mountains in the United States; one with a light greyhound-like form, which pursues deer, and the other more bulky, with shorter legs, which more frequently attacks the shepherds' flocks.

The use and the disuse of particular organs combine their effects with those of natural selection, in the modification of species; use strengthens and enlarges certain parts, and disuse diminishes them. Such modifications are inherited. Many animals have structures which can be explained by the effects of disuse. As Professor Owen has remarked, there is no greater anomaly in nature than a bird that cannot fly; yet there are several in this state. Since the larger ground-feeding birds seldom take flight except to escape danger, Mr. Darwin believes that the nearly wingless condition of several birds, which now inhabit or have lately inhabited several oceanic islands, tenanted by no beast of prey, has been caused by disuse. The ostrich, indeed, inhabits continents, and is exposed to danger from which it cannot escape by flight; but by kicking it can defend itself from its enemies, as well as any of the smaller quadrupeds. We may imagine that the early progenitor of the ostrich had habits like those of a bustard, and that as Natural Selection increased in successive generations the size and weight of its body, its legs were used more, and its wings less, until they became incapable of flight.

The eyes of moles and of some burrowing rodents are rudimentary in size, and in some cases are quite covered up by skin and fur. This state of the eyes is probably due to gradual reduction from disuse, but aided, perhaps, by

Natural Selection. In South America, a burrowing rodent, the tuco-tuco, is even more subterranean in its habits than the mole; and the Spaniards, who often catch them, assert that they are frequently blind. One, which Mr. Darwin kept alive, was certainly in this condition, the cause, as appeared on dissection, having been inflammation of the nictitating membrane. As frequent inflammation of the eyes must be injurious to any animal, and as eyes are certainly not indispensable to animals with subterranean habits, a reduction in their size, with the adhesion of the eyelids and growth of fur over them, might, in such case, be an advantage; and if so, Natural Selection would constantly aid the effects of disuse. It is well known that several animals, belonging to the most different classes, which inhabit the caves of Styria and of Kentucky, are blind. In some of the crabs, the foot-stalk for the eye remains, though the eye is gone; the stand for the telescope is there, though the telescope with its glasses has been lost. As it is difficult to imagine that eyes, though useless, could be in any way injurious to animals living in darkness, Mr. Darwin attributes their loss wholly to disuse. Not a single domestic animal can be named which has not, in some country, drooping ears; and the view suggested by some authors, that the drooping is due to the disuse of the muscles of the ear from the animals not being much alarmed by danger, is accepted as probable.

Mr. Wollaston has discovered the remarkable fact that two hundred kinds of beetles, out of the five hundred and fifty inhabiting Madeira, cannot fly; and that of the twenty-nine endemic genera, no less than twenty-three genera have all their species in this condition. Several facts, namely, that beetles, in many parts of the world, are frequently blown to sea and perish; that the beetles in Madeira, as observed by Mr. Wollaston, lie much concealed until the wind lulls and the sun shines; that the proportion of wingless beetles is larger on the exposed Desertas than in Madeira itself; and especially the extraordinary fact, so strongly insisted on by Mr. Wollaston, of the almost entire absence of certain large groups of beetles, elsewhere excessively numerous, and which groups have habits of life almost necessitating frequent flight;—these several considerations have made Mr. Darwin believe that the wingless condition of so many Madeira beetles is due mainly to the action of natural selection, but combined probably with disuse. For, during thousands of successive generations, each individual beetle which flew least, either from its wings having been ever so little less perfectly developed, or from indolent habit, will have had the best chance of surviving from not being blown out to sea; and, on the other hand, those beetles which most readily took to flight would oftenest have been blown to sea and thus have been destroyed. As with mariners shipwrecked near a coast, it would have been better for the good swimmers if they had been able to swim still further, whereas it would have been better for

the bad swimmers if they had not been able to swim at all, and had stuck to the wreck.

The theory, of which a brief sample has been given, entails the vastest consequences. We are no longer to look at an organic being as a savage looks at a ship—as at something wholly beyond his comprehension; we are to regard every production of nature as one which has had a history; we are to contemplate every complex structure and instinct as the summing up of many contrivances, each useful to the possessor, nearly in the same way as when we look at any great mechanical invention as the summing up of the labour, the experience, the reason, and even the blunders, of numerous workmen. The natural system of classification becomes a genealogical arrangement, in which we have to discover the lines of descent by the most permanent characters, however slight their vital importance may be; because the real affinities of all organic beings are due to inheritance or community of descent. Natural Selection can only act through and for the good of each being; acting by competition, it adapts the inhabitants of each country only in relation to the degree of perfection of their associates; so that we need feel no surprise at the inhabitants of any one country (although on the ordinary view supposed to have been specially created and adapted for that country) being beaten and supplanted by the naturalised productions from another land. Nor ought we to marvel if all the contrivances in nature be not, as far as we can judge, absolutely perfect; and if some of them be abhorrent to our ideas of fitness. We need not marvel at the sting of the bee causing the bee's own death; at the instinctive hatred of the queen bee for her own fertile daughters; and at other such cases.

Judging from the past, we are to infer that not one living species will transmit its unaltered likeness to a distant futurity. And, of the species now living, very few will transmit progeny of any kind to a far-distant futurity; for the manner in which all organic beings are grouped, shows that the greater number of species of each genus, and all the species of many genera, have left no descendants, but have become utterly extinct. We can so far take a prophetic glance into futurity as to foretell that it will be the common and widely-spread species, belonging to the larger and dominant groups, which will ultimately prevail and procreate new and dominant species. And as Natural Selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress towards perfection. Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows.

Timid persons, who purposely cultivate a certain inertia of mind, and who love to cling to their preconceived ideas, fearing to look at such a mighty subject from an unauthorised and unwanted point of view, may be reassured by the reflection that, for theories, as for organised

beings, there is also a Natural Selection and a Struggle for Life. The world has seen all sorts of theories rise, have their day, and fall into neglect. Those theories only survive which are based on truth, as far as our intellectual faculties can at present ascertain; such as the Newtonian theory of universal gravitation. If Mr. Darwin's theory be true, nothing can prevent its ultimate and general reception, however much it may pain and shock those to whom it is propounded for the first time. If it be merely a clever hypothesis, an ingenious hallucination, to which a very industrious and able man has devoted the greater and the best part of his life, its failure will be nothing new in the history of science. It will be a Penelope's web, which, though woven with great skill and art, will be ruthlessly unwoven, leaving to some more competent artist the task of putting together a more solid and enduring fabric.

ARDISON AND CO.

THE Island of Sardinia, one of the rare Italian localities hitherto happily exempt from the excitement of political passions, and the disturbing influences which have seldom ceased to trample the bosom of its continental parent, has recently been startled by the discovery of a moral disease in its domestic life, which will find few parallels in the history of crime.

Most persons who, like the writer, have had opportunities of studying the character and social habits of the island Sards, bear willing testimony to their quiet industry, their calm content, their affectionate disposition, their almost patriarchal practice of the relative duties of host and guest, of master and servant, and, lastly, to their cordial yet not undignified appreciation of interest felt or courtesy expressed by pilgrims from afar.

Petty crimes are of singularly rare occurrence. The prisoners at this moment confined in the gaols of Sassari and Cagliari are almost exclusively importations—not children of the soil—and the prison of the large town of Cagliari has not for two years enclosed a single occupant. When murder has, from time to time, left its stain on these otherwise satisfactory records, it has been usually traceable to no meaner source than the quick and fiery jealousy in all ages a notable characteristic of this people, or to the lingering influence of the deadly "vendetta"—inherited blood-feud—which has sacrificed whole families, and once depopulated an entire village for one girl.

There was, years ago, a certain village beauty, whose list of lovers included every disengaged male of the township, and this maiden had three fierce brothers. Now, to salute the lips of a fair lady in public, constitutes an offence which, if not condoned by instant marriage, entails an inevitable "vendetta" upon the families concerned. In order, it seemed, to bring matters to a crisis, the most impatient of the suitors availed himself of a village fête, to salute his beautiful mistress at the head of a procession. He was *not* the favoured one, for

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THE WOMAN IN WHITE.

PART THE SECOND. HARTRIGHT'S NARRATIVE
CONTINUED.

VIII.

BEFORE I had reached the turning which led out of the square, my attention was aroused by the sound of a closing door, in the row of houses behind me. I looked round, and saw an undersized man in black, on the door-step of the house, which, as well as I could judge, stood next to Mrs. Catherick's place of abode, on the side nearest to me. The man advanced rapidly towards the turning at which I had stopped. I recognised him as the lawyer's clerk who had preceded me in my visit to Blackwater Park, and who had tried to pick a quarrel with me, when I asked him if I could see the house.

I waited where I was, to ascertain whether his object was to come to close quarters and speak, on this occasion. To my surprise, he passed on rapidly, without saying a word, without even looking up in my face as he went by. This was such a complete inversion of the course of proceeding which I had every reason to expect on his part, that my curiosity, or rather my suspicion, was aroused, and I determined, on my side, to keep him cautiously in view, and to discover what the business might be on which he was now employed. Without caring whether he saw me or not, I walked after him. He never looked back; and led me straight through the streets to the railway station.

The train was on the point of starting, and two or three passengers who were late were clustering round the small opening through which the tickets were issued. I joined them, and distinctly heard the lawyer's clerk demand a ticket for the Blackwater station. I satisfied myself that he had actually left by the train, before I came away.

There was only one interpretation that I could place on what I had just seen and heard. I had unquestionably observed the man leaving a house which closely adjoined Mrs. Catherick's residence. He had been probably placed there, by Sir Percival's directions, as a lodger, in anticipation of my inquiries leading me, sooner or later, to communicate with Mrs. Catherick. He had doubtless seen me go in and come out; and he had hurried away by the first train to make his report at Blackwater

Park—to which place Sir Percival would naturally betake himself (knowing what he evidently knew of my movements), in order to be ready on the spot, if I returned to Hampshire. I saw this clearly; and I felt for the first time that the apprehensions which Marian had expressed to me at parting, might be realised. Before many days, there seemed every likelihood, now, that Sir Percival and I might meet.

Whatever result events might be destined to produce, I resolved to pursue my own course, straight to the end in view, without stopping or turning aside, for Sir Percival, or for any one. The great responsibility which weighed on me heavily in London—the responsibility of so guiding my slightest actions as to prevent them from leading accidentally to the discovery of Laura's place of refuge—was removed, now that I was in Hampshire. I could go and come as I pleased, at Welmingham; and if I failed in observing any necessary precautions, the immediate results would, at least, affect only myself.

When I left the station, the winter evening was beginning to close in. There was little hope of continuing my inquiries after dark to any useful purpose, in a neighbourhood that was strange to me. Accordingly, I made my way to the nearest hotel, and ordered my dinner and my bed. This done, I wrote to Marian, to tell her that I was safe and well, and that I had fair prospects of success. I had directed her, on leaving home, to address her first letter (the letter I expected to receive the next morning) to "The Post-office, Welmingham;" and I now begged her to send her second day's letter to the same address. I could easily receive it, by writing to the postmaster, if I happened to be away from the town when it arrived.

The coffee-room of the hotel, as it grew late in the evening, became a perfect solitude. I was left to reflect on what I had accomplished that afternoon, as uninterruptedly as if the house had been my own. Before I retired to rest, I had thought over my extraordinary interview with Mrs. Catherick, from beginning to end; and had verified the conclusions which I had hastily drawn in the earlier part of the day.

The vestry of Old Welmingham church was the starting-point from which my mind slowly worked its way back through all that I had heard Mrs. Catherick say, and through all that I had seen Mrs. Catherick do. At the time when the neighbourhood of the vestry was first re-