rally forced to go back to recover the habitual train of thought. So P. Huber found it was with a caterpillar, which makes a very complicated hammock; for, if he took a caterpillar which had completed its hammock up to, say, the sixth stage of construction, and put it into a hammock completed only up to the third stage, the caterpillar simply reperformed the fourth, fifth, and sixth stages of construction. If, however, a caterpillar were taken out of a hammock made up, for instance, to the third stage, and were put into one finished up to the sixth stage, so that much of its work was already done for it, far from feeling the benefit of this, it was much embarrassed, and, in order to complete its hammock, seemed forced to start from the third stage, where it had left off, and thus tried to complete the already finished work."

With a few sentences from the author's "Conclusion" we will also conclude this notice, trusting that our readers will be induced to make a larger acquaintance with the good things of the volume itself :-

"Authors of the highest eminence seem to be fully satisfied with the view that each species has been in-dependently created. To my mind it accords better with what we know of the laws impressed on matter by the Creator that the production and selection of the past and present inhabitants of the world should have been due to secondary causes, like those determining the birth and death. When I view all beings not as special creation, but as the lineal descendants of some few beings which lived long before the first bed of the Silurian system was deposited, they seem to me to become ennobled.

"There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms, or into one; and that while the planet has gone cycling on according to the fixed law of gravity, from so simple a beginning end-less forms most beautiful and most wonderful have been, and are being, evolved."

APRIL 18, 1868.

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DARWIN ON VARIATION.

The Variation of Animals and Plants under Domestication. By CHARLES DARWIN. London: John Murray. 2 vols., 8vo. 1868.

The Variation of Animals and Plants under Domestication. By CHABLES DARWIN. London: John Murray. 2 vols., 8vo. 1868.

THE SUBJECT OF VARIATION in domesticated animals is one which has, at least until a comparatively recent period, been passed over by scientific naturalists. This neglect may have arisen from one or both of two causes—ignorance of the subject, or want of appreciation of the importance of those modifications of specific forms which are perpetuated by breeders and fanciers. Mr Charles Darwin, the author of the well-known treatise "On the Origin of Species by Natural Selection," has for very many years paid great attention to this matter, as he considers the establishment of varieties by the process of long-continued artificial or human selection to be analogous to the origin of species by natural selection; and in the volumes under notice he has given us a most complete account of the amount and nature of the changes which animals and plants have undergone whilst under man's dominion. Setting aside altogether the bearing of this work on Mr Darwin's well-known hypothesis, it possesses for naturalists the highest possible interest, as being not merely the most complete, but we may say the only work which has ever been published, in which the nature and origin of varieties or distinct breeds are scientifically treated. Nor is the value of this work lessened by its being written with reference to a particular theory. Mr Darwin is known not only as one of the most accurate observers amongst living naturalists, but also as one of the most conscientious recorders of facts, stating with equal fulness and impartiality those that are opposed to, and those that are in favour of, his own conclusions. From the peculiar nature of his speculations, Mr Darwin has had many opponents; but, however much any of these may have dissented from his conclusions, all have borne testimony to the accuracy of his statement of facts, and to the great benefits he has conferred on natural science by the singular originality of hi

In commencing the chapter on domestic dogs and cats, the author

The first and chief point of interest in this chapter is, whether the numerous domesticated varieties of the dog have descended from a single wild species, or from several. Some authors believe that all have descended from the wolf, or from the jackal, or from an unknown and extinct species. Others again believe, and this of late has been the favourite tenet, that they have descended from several species, extinct and recent, more or less commingled together. We shall probably never be able to ascertain their origin with certainty.

Mr Dar origin of high ant

wever, inclines strongly to the belief in the mixed stic breeds, not only from a consideration of their proved by reeds as diverse as greyhounds and ted on Assyrian monuments erected at dates 000 years before the Christian era, but also the various races of dogs kept by savages in orld, which always more or less closely idigenous to the country. Thus, the North g of the Indians are so like that they can not the more northern Esquimaux dogs the Arctic circle, while in British Gniana r dogs with a crab-eating wolf (C. cancridos). The power of barking possessed by obviously only an acquired habit, and, animals are allowed to become feral.

animals are allowed to become feral.

e island of Juan Fernandez having become
there is reason to believe that the dumbthree years. On the other hand, dogs
swly reacquired the habit of barking. The
swly but one bern in the Zoological Gardens
aloudly as any other dog of the same age and size."
Nillson, a wolf-whelp, reared by a bitch, barks.
exhibited a jackal which barked with the same tone
in interesting account has been given by Mr G.
sr i wild on Juan de Nova, in the Indian Ocean: "They
of ficulty of barking; they had no inclination for the
gs; nor did they acquire their voice" during a captivity
On the island they "congregate in vast packs, and eatch
unch address as force could display."

The obje on sometimes made to the theory that our domesticated dogs cannot be descended from wolves and jackals, because their period of gestation is different, is shown to be without foundation, as the period is found to agree in the wolf, dog, and jackal, being often, however, variable in all three. Having reviewed the subject of the origin of the dog with great care, Mr Darwin considered as follows: cludes as follows:

When we reflect on the extreme antiquity of the different breeds, and especially when we relect on the close similarity both in external structure and habits between the domestic dogs of various countries and the wild species still inhabiting these same countries, the balance of evidence is strongly in favour of the multiple origin of our dogs.

The mode in which the different breeds of dogs have been established is fully entered into. With regard to man's power in selection it is stated:

Nature having given variability, man, if he so choose, could fix five toes to the hinder feet of certain breeds of dogs, as certainly as to the feet of his Dorking fowls; be could probably fix, but with much more difficulty, an additional pair of molar teeth in either jaw, in the same way as he has given additional horns to certain breeds of sheep; if he wished to produce a toothless breed of dogs, having the so-called Turkish dog, with its imperfect teeth, to work on, he could probably do so, for he has succeeded in making hornless breeds of cattle and sheep.

teeth, to work on, he could probably do so, for he has succeeded in making hornless breeds of cattle and sheep.

The deterioration of certain races of dogs in India is a matter of great importance to sportsmen, and Mr Darwin brings some new facts to bear upon the question. He says:

Dr Falconer informs me that bulldogs, which have been known, when first brought into the country, to pin down even an elephant by its trunk, not only fall off after two or three generations in pluck and ferceity, but lose the under-hung character of their lower jaws; their muzzles become finer, and their bodies lighter. English dogs imported into India are so valuable that probably due care has been taken to prevent their crossing with native dogs; so that the deterioration cannot be thus accounted for. The Rev. R. Everest informs me that he obtained a pair of setters, born in India, which perfectly resembled their Scotch parents; he raised several litters from them in Delhi, taking the most stringent precautions to prevent a cross, but he never succeeded, though this was only the second generation in India, in obtaining a single young dog like its parent in size or make; their nostrils were more contracted, their noses more pointed, their size inferior, and their limbs more slender. This remarkable tendency to rapid deterioration in European dogs subjected to the climate of India, may perhaps partly be accounted for by the tendency to reversion to a primordial condition which many animals exhibit, as we shall see in a future chapter, when exposed to new conditions of life.

The manner in which man unconsciously has produced certain varietions in a nimely is remarkable in a future chapter, when exposed to new conditions of life.

The manner in which man unconsciously has produced certain variations in animals is remarkably instanced by a consideration of the variable extent to which webbing of the feet exists in dogs, being much greater in Newfoundlands and otter-hounds than in terriers and the more terrestrial breeds. Mr Darwin states:

terriers and the more terrestrial breeds. Mr Darwin states:

As aquatic animals which belong to quite different orders have webbed feet, there can be no doubt that this structure would be serviceable to dogs that frequent the water. We may confidently infer that no man ever selected his water dogs by the extent to which the skin was developed between their toes; but what he does is to preserve and breed from those individuals which hunt best in the water, or best retrieve wounded game, and thus he unconsciously selects dogs with feet alightly bottor webbed. Man thus closely imitates Natural Selection. We have an excellent illustration of this same process in North America, where, according to Sir J. Richardson, all the wolves, foxes, and sboriginal domestic dogs have their feet broader than in the corresponding species of the Old World, and "well calculated for muning on the snow." Now, in these Arctic regions, the life or death of every animal will aften depend on its success in hunting over the snow when softened; and this will in part depend on the feet being broad; yet they must not be so broad as to interfere with the activity of the animal when the ground is sticky, or with its power of burrowing holes, or with other habits of life.

Domesticated cats are proved to have descended from several

Domesticated cats are proved to have descended from several distinct species, and they consequently vary considerably in different parts of the world. It appears that the hybrids between almost all the smaller wild species of Felis are fertile, and the domesticated have certainly crossed with the wild individuals in many different countries. From the difficulty of pairing cats little or nothing has been done to produce varieties by artificial selection, and consequently cats show far less variation than any other thoroughly domesticated animals.

The variations of the other domesticated animals are described by the author in a similar manner to those noticed above. We propose in succeeding numbers of The Field to give a risumé of Mr Darwin's researches as respects the remaining species, as cattle, sheep, pigs, &c.

sheep, pigs, &c.

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DARWIN ON VARIATION.

The Variation of Animals and Plants under Domestication, By CHARLE DAWNIN. London: John Murray. 2 vols., 8vo. 1896.

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trailion of this same process in North America, where, according to Sir J. Richardson, all the wolves, forzes, and abortiginal donestic dogs have their two brought than in the corresponding "Now of the Old Worth, and the state in the corresponding and the will be of the Old Worth, and the life or death of wery animal will aften depend on its success in huntier were the snow when softened; and this will in part depend on the success in huntier were the snow when softened; and this will in part depend on the success in huntier when, as we were stated to them. The same the ground is citedy, or with its power of more than the same and the sound when the ground is citedy, or with the power of the control its repeats that the hydrids between almost all the smaller will appecies of Felis are fertile, and the domesticated have certainly croused with the wild individuals in many different countries. From the difficulty of pairing cate little or nothing has quantity cates about far less variation than any other thoroughly domesticated animals.

The variations of the other domesticated animals are described by the author in a similar manner to those noticed above. We probavily a season the same and though the state of est summer visitors, 31; winter visitors, 30; total, 225. We are thus saved the ever-securing sentence, "this bird is an imprakory with us," or "this bird is a constant resident." When a species is once placed in the eyer-securing sentence, "this bird is an imprakory with us," or "this bird is a constant resident." When a species is once placed in the group of residents, all is said on that point that is read an atter of choice we should have preferred the omission of many of the species which occupy a place among "The Birds of Berkshire and Buckinghamshire." Such, for instance, are the great ank, the black swan, the black wondpecker, the Canada goose, the Carolina crake, the guillemot, the harlequin duck, the mandarin duck, the spraw-winged goose, the wood grouse, and the Solan goose. We cannot help regretting the introduction of such birds, notwith-standing that the authority for each is eastfully given. No authority could induce an ornithologist to suppose the great ank to be a bird of Berkshire or Buckinghamshire; and the story toid of this bird is the old familist one related by Mr. Bullock, of Museum notority, to Dr. Fleming, and tootid. The Europe of them on his estate at Carshalton, and although one of them may have left his birthplace and strayed into Berkshire, no one by any stretch of the imagination, or by any process of reasoning, will suppose this Australian to be either naturalised in Berkshire or a voluntary visitor from the antipodes.

With regard to the great black woodpecker, we will give all the evidence Mr Clark Kennedy adduces, simply premising that he adds two more instances of the cocurrence of this bird in Birtain.

In April, 1844, a great black woodpecker was seen in several successive days in the Home Park, Windsoor. The observer in this case was a Nicosomic security of the best of the product of the bird as to leave no room for doubt that it was a vertibable Flow marker. Improbable as it may appear to coupling the produce of the bird is necessary to coupling the coupling of the produ

The mode in which the different breeds of dogs have been established is full mitted into. With regard to man's power in selection it is studed varied into. With regard to man's power in selection it is studed varied into. With regard to man's power in selection it is studed varied into. With regard to man's power in selection it is studed varied into. With regard to man's power in selection it is studed varied into. With regard to man's power in selection it is studed varied to select the contract of the contract varied in the same way as he has given in the same way as an accordably recommend to cur readers the same way as a student same way as an accordably recommend to cur readers and which we condition, and the same way as a state of the same way as a st

The book is illustrated by woodents and by a map, which shows not only life Parkyra's route, but those of some other of the principal Abysnian travellers.

TREATMENT OF DAIRY STOCK.

The Treatment of Stock is the Dairy Districts of Shrepaire and Cheshire. Wolverhampton: George Griffind, 28, Quess-street.

Thus was the subject of a lecture lately dairy-week before the several Valley Parmers' Club by J. Baile breatment of dairy toto: in the field, and at the homestead. The folly of posching during winter; the cold we pastures (generally on the new red annotation for dairy toto: in the field, and at the homestead. The folly of posching during winter; the cold we pastures (generally on the new red annotation forms); the condition of such in spring; the land near and about the getes looking like mud; the deep track all over the field; the retention in these impressions of water long after it has been absorbed on the subrodden land—are all proofs of the injury that must result from heeping young stockoul day and night through winter, and turning the decling the basilit of the cow, is the ordinary treatment most unfortunate. When animals tied up in a hot, coworded, low-roofed shed during night, are turned out during days regardless of weather, to stand with backs up and staring coats on the le side of a hedge, such violent changes must surely produce to disease; the seeds of consemption, inflammation of borels or lung, are sown in each a coil with a lively prospect of rapid growth; and when any epidemic door. We are the last to advocate a system which pampers the animal, and therefore do not altogether coincide with Mr. Denton a stockowed yards, although the economy of litter in a very strong point when the proportion of arable that he application to the derivation as to covered yards, although the common starting and the proportion of arable that he application to the derivation as to covered yards, although the common starting and the second proper in the proportion of arable start is not at the start in the late of

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thouseance animaty during a period or thirty years. sold by all medicine vendors in bottles, it. 14d. and 2b. 4d. each.

[Advertisament,]—Structures at 15 Bocca writtory Wightzer. For properly made shoots. Blisters or irritation on the test, resulting from wrinkles, may be prevented by wearing Leath's "Right and Left Shockings of Socks," which afford greater freedom to the toes than those of ordinary shaps, and are more durable, as accuracy of fit prevents test-income and the structure of the second struc