

Mr. Smollett had recorded his vote on the side of progress," and further, that he should "be very sorry if Mr. Smollett represented the opinions of the majority of the electors of Dumbarton; for, if such were the case, it would be the most retrograde county in Scotland." And so Mr. P. B. Smollett, after having been grimly thanked for his attendance, went home, we fear, a sadder but, let us hope, a wiser man.

#### THE CUCKOO CONTROVERSY.

**D**URING the temporary absence of the cuckoo we may discuss with the more delicacy the question concerning her rather eccentric habits, which has been just revived by Mr. Rowell, of the Oxford Museum. In an appendix to the second edition of his very ingenious essay on "The Beneficent Distribution of the Sense of Pain,"\* he has published a paper read four years ago before the Ashmolean Society on the habits of this bird,—the purpose of which was to use the cuckoo in refutation of the great theory of Mr. Darwin concerning the natural and cumulative growth of those provident animal instincts by which the different species of animals are preserved against danger and rendered more fruitful. Mr. Darwin's great theory, as everybody knows, asserts that the fixity of the more remarkable animal instincts is not only the cause but also the result of the safety they ensure. He holds that when a variation takes place in the habits of an animal,—we need not say as Mr. Rowell does from *accidental* causes, for the most strenuous Darwinite may fairly interpret the Darwinian theory as giving the mere *modus* of God's providence,—but whether accidental or designed, still favourable to the growth or preservation of the race, then the individuals amongst its offspring which reproduce that habit will be less subject to dangers and death or else more fruitful of offspring than those which do not,—and that thus the latter will increase less rapidly or perish more rapidly than the former, till the "preservative addition" thus made to the habit of the creature is at last fixed in the whole species. Thus Mr. Darwin thinks that the wild bees, of which there is still a trace, which made round cells instead of hexagonal cells, lost so much space and food that when an approximation to hexagonal cells was once introduced from any cause (commonly called accidental), the bees making it would gain so great an advantage over the more barbarous species, that they would perish more slowly, or perhaps multiply faster, till in time the whole body of survivors would have acquired the hereditary habit of hexagonal building. And in the same way he accounts for most instincts as a *growth*, by infinitesimal additions accumulated by hereditary transmission, of slight deviations in habit favourable to the preservation of a species,—all the slight deviations in the opposite direction being of course soon extinguished by the mere fact that they expose the creatures which fall into them to a more rapid destruction.

Now against this theory of the gradual accretion, by infinitesimal steps, of shades of habit favourable to the preservation of a race, until you get at last a fixed, well-developed, specific instinct, Mr. Rowell calls the cuckoo as a witness. The cuckoo, as every one knows, objects to nursing on her own account and gets other birds to hatch and feed her young for her. She lays her eggs at intervals of two or three days, and has the power of retaining her egg for a short time after it is ready to be laid till she can choose her foundling hospital, which she generally does in the nest of a hedge-sparrow, a yellowhammer, a wagtail, or a meadow titlark. Mr. Darwin suggests as his account of the growth of this instinct that the progenitor of our cuckoo having already, like a few other birds—Mr. Rowell mentions three, hawks, hen harriers, and owls—the habit of laying eggs at intervals of two or three days, and being at that time still domestic and hatching her own young in her own nest, may have had young which were not vigorous nor well fed owing to the inconvenient difference in age between the young nestlings. He supposes that, having on some occasions used the nest of a neighbour in preference, the cuckoos so produced benefited so much by the care of their foster parents, and were so much hardier than the victims of home education, that these offspring lived and thrived while the others died, that some of them transmitted the habit to their progeny, which were in like manner the stronger and healthier for it, till at last all the surviving cuckoos had inherited a fixed instinct of dropping their eggs in other birds' nests, and the domestic breed disappeared altogether.

To this Mr. Rowell replied that the account might be satisfactory if the only thing to be accounted for were the habit of intruding the egg on other nests, which it is not. In this we think he concedes too much, for the curious point is why the cuckoo should

profit by being hatched amongst foster brothers *also* of unequal age, and though of smaller size yet attended on by parents of smaller size, more than by the usual education. Mr. Darwin will say,—because directly he is born he ejects these embryo foster brothers, and remains alone in the nest and takes up all the attention of his foster parents. That is true, but it is a new instinct to account for, and it does not seem clear why the same thing might not just as well happen in the cuckoo's own nest, where that practice would conduce equally to the selfish wants of the young monopolist.

Moreover Mr. Rowell enumerates the points for which any such theory of Mr. Darwin's fails to account, and shows that they hang together in a kind of system. First an essential condition of the cuckoo's success in these eccentric proceedings is the very small size of her egg in proportion to the size of the bird. This alone it is which enables her to impose it on the simple little wagtails, sparrows, and titlarks. The egg is only the size of the skylark's,—a bird not more than a fourth of the size of cuckoos; and it is five times as small as that of the snipe, which is about as big as the cuckoo. Mr. Rowell justly observes that this smallness of the egg is the more remarkable on account of the long interval of two or three days between the laying of each egg. Disproportionately small eggs with long intervals between them are essential conditions of success to the cuckoo's proceedings; and both these conditions, *primâ facie* unlikely to be combined as they are, are found. Again, the very short time which a cuckoo's egg requires for hatching is one of the conditions of success. The egg, small as it is, is laid among yet smaller eggs, and notwithstanding it is usually the first hatched in the nest, says Mr. Rowell, if not invariably. The reason why this is essential to the whole plan of operations appears to be that it makes it easier for the young cuckoo to pitch his embryo foster brethren out. If they were hatched much before him, so as to be at all well grown, this would be a more difficult feat, as well as cause a quantity of unnecessary pain by starving them to death after they had got some hold on life. Here, again, is the young cuckoo's instinctive habit of thus expelling its rivals to be accounted for; for it begins clearing the nest almost as soon as it is hatched. Also it has a special physical adaptation for this purpose:—

"There is no apparent cause for its operating at such an early period in the creature's life, as at that time the nest affords ample room for all its occupants; and in fact the instinct ceases after a few days, diminishing as the bird increases in size, till it is lost altogether by the time the young cuckoo almost entirely fills the nest. But this singular instinct is not the only point for consideration, as with it we find an equally singular development of form, which enables the young cuckoo to effect the purpose of its instinct; as when first hatched it is much broader in the back than other birds of its size; it has also a very peculiar hollow in the back, from the shoulders to the rump, and when, by wriggling itself beneath, it gets either a young bird or egg into this hollow of the back, it is thrown out of the nest by a sort of jerk. This singular form can only be considered as a special provision, as the young cuckoo could not effect its purpose of clearing the nest of its foster brethren, if it were of the general form of other young birds. The hollow of the back gradually becomes less as the instinct decreases, and the back of the young cuckoo becomes like that of other young birds by the time that the instinct is lost."

Finally the cuckoo being without parents of its own is as a compensation, says Mr. Rowell, an exceedingly courageous, alarming, and ferocious bird in manners *when young*, though it becomes a shy and very timid one later on in life. And this he regards as fitting-in to the whole plan of its motherless youth.

Mr. Darwin then, as we understand Mr. Rowell's argument, ought to account, by his theory of the physical advantages gained by individual peculiarities accumulating gradually in a single species, for five or six separate characteristics all of which so link into each other as to be of little use if they did not exist simultaneously. It would be to no purpose that the cuckoo should have an unusually small egg, if there were not an interval of some length between each for her to find a fresh nest into which to intrude it. Even this would be of no use if the time of hatching were not so short that the cuckoo gets the start of its rivals; nor would this do, had it not in its first days of life a shovel-shaped back and a shovelling instinct for getting rid of its rivals which, however, only last for some ten or twelve days at most. Small-egged cuckoos might supplant large-egged cuckoos, if they were healthier; but they would be healthier only, says Mr. Darwin, because nursed out; so that the small-egged cuckoos must have taken, on the strength of the smallness of their eggs, to dropping them elsewhere, *before* any advantage of race could accrue. Not only so, but even of those thus nursed out none could have an advantage till one was born with a temporary

\* Williams and Norgate.

shovel-back, to whom it occurred to use that back for shovelling out the other eggs or nestlings;—then first would it have a real advantage in health over home-nursed cuckoos to transmit to its descendants. Here is a systematic chain of circumstances of which each link supposes the rest, and none of which would have improved the cuckoo race, or given it any advantage in the conflict of existence unless the rest had been contemporary with it,—so that the cumulative principle of infinitesimal “preservative additions” scarcely applies.

We confess we think this, so far as it goes, though a minute a very effective case against the Darwinian theory which requires the gradual hereditary growth of adaptations, and rejects a matured, complex plan of instinct as inconsistent with the economy of scientific hypothesis. On the other hand, we do not think Mr. Rowell gains much in theory by showing that “the final cause for the cuckoo’s instinct seems to be the supply of sufficient food for her young.” He thinks the cuckoos could not be brought up at home, because “as they have no strong bill, like the woodpecker, wherewith to tear down the bark of trees, or powerful legs and claws, to enable them to search in the ground for food, they seem to be no more able to collect food than such birds as are generally selected for foster parents; and as these small birds have so much difficulty in supplying one young cuckoo, it seems impossible for a pair of cuckoos to feed a whole brood; the necessity for foster parents is therefore apparent.” This may be so, but it only puts us back to the other question,—why, then, had not cuckoos strong bills and powerful legs and claws to supply their young with? Or why do not the cuckoos at least rear one or two young ones themselves and look out for foster parents only for the remainder? Why are we to assume as needing no explanation such a curious premiss as the necessity of providing for a race of birds not strong enough to supply their own young with food, and yet be quite satisfied when we have explained all the other instincts of the cuckoo as results following from that premiss? Mr. Darwin might well turn round and say, “If I have failed to explain the gradual growth of the instinct by my theory, you at least have not attempted at all the harder part of your theory, the *raison* for a creative design apparently so incomplete, and so much in need of piecing out by unnatural instincts, as a race of birds incompetent to find enough food for their own young?”

This will probably always be the difficulty of the Paleyan school. It may often make clear its case for a design behind nature, but it is by no means so easy to make out a purpose for the design. For our own parts, we should hold with Emerson’s theory, originally, we believe, Plato’s, that “those things which swim, fly, creep, are so many *shortcomings* of man,—that is, they fall short of being men at this or that degree, and so represent some as yet uncontrolled animalism of human nature.” In this sense there is a creative design of which even man can discern something in the eccentricities of the cuckoo, as there is also in the dull industry of the beaver or the bee, the tortuous malignity of the snake, the cruel mercy of the cat towards its prey, or the servile institutions “peculiar” to the ant. No doubt the animal world is really intended to hold a mirror up to the animal elements in man, and the cuckoo is a most expressive image of the transformation of the same selfish instinct between parent and offspring,—the unscrupulous maternity which induces the mother to abandon her eggs being clearly morally identical with that which induces the orphan cuckoo to oust its foster brethren in order that it may have all the space, food, and attention to itself. Children thrown on their own resources by the indolence of their parents will always, the cuckoo says, be ‘fast’ and pushing to a very aggressive degree. And it is instructive to see that the cuckoo mother always imposes its egg on *small* birds with eggs just a little smaller than its own, in the hope of overawing them, in which it generally succeeds. It is a bad instance of the success of effrontery in both mother and child. Mr. Rowell tells us that the little cuckoo when once it has expelled its rivals is so clamorous for food as often to overwork its foster parents and bring other birds to their assistance. In the gardens of Worcester College such an intruder had been observed with another pair of birds helping its foster parents in waiting anxiously upon it and trying in vain to stop its clamorous mouth. A more impressive illustration of claims successfully established on a wrong, by brazen audacity, can scarcely be found in the whole range of animal life. If these curiously allied instincts, of intrusion in the parent and exclusiveness and *exigence* in the child, be not set up purposely to mirror certain inveterate tendencies of human nature,—who shall find us a better reason for them? Mr. Darwin’s theory, whether true or false, tends to rob the habits and instincts of animals of their moral colouring and picturesqueness; but the mere Paleyan adaptation-

principle will never confute it,—for, if it sometimes explains better the curious working of the mechanism, it never offers any reason for the curious defects and limitations in the conception of the machine.

#### DEMOCRACY IN THE SCOTCH FREE CHURCH.

THE constitution of the General Assembly of the Free Church of Scotland is better worth studying than English politicians, who as a class dislike all ecclesiastical conclaves, may be apt to think. It is the only body in England exercising strictly parliamentary powers, *i. e.*, an executive as well as a legislative authority, which is thoroughly democratic. It is elected in practice by universal suffrage, established among a people singularly if not exceptionally qualified to exercise it, and the result of that mode of representation when fairly applied on a tolerably adequate scale is well worth attention. The Assembly is the real and the final governing body of the Free Church of Scotland, that is, of a million and a half of unusually well educated English-speaking persons, and owing to the deep ecclesiastical feeling of the people, the reverence they entertain for their ministers, and the tendency of all ability among the lower classes towards the pulpit, performs many of the representative functions of a parliament. It would be very dangerous to force a secular measure on Scotland which this body decidedly disapproved, very difficult to refuse an act of which it was heartily desirous. Its constitution, though guarded by one material check, is democratic enough to satisfy even Mr. Bright. Any person in Scotland being male and of full age—Scotch feeling, by an odd anomaly when the object is considered, excluding females—may pretty much at his own discretion become a voter. As a communicant, which in Scotland simply means a person not vicious, fairly informed, and desirous of becoming one, he has a vote for the election of the Minister and the Presbytery—the council which guides the affairs of each knot of congregations. Each such council chooses one-third of its own numbers, ministers and laymen, to form the general governing body or assembly, and as minister as well as layman is elected by the communicants the democratic idea could hardly be pushed more nearly to its logical end. As a matter of fact, too, this election is really democratic, folks possessed of a plaid and nothing else not tolerating in the smallest degree interference with their religious “privileges.” An elder who contributes largely to the funds may on most subjects exercise very material influence sometimes even the unreasonable influence he does in most dissenting churches, but his power as regards these elections is in Scotland very limited, or exercised by virtue of character rather than social weight. The only real check on the democracy consists in the fact that one-half the representatives must be ministers, and that a minister must be an educated man, with few exceptions must be a man who has gone through an eight years’ course of collegiate instruction. The Assembly is in fact a parliament elected by household suffrage, with the single restriction that half its members must be chosen from persons with some tincture of culture other than the grace the Almighty may have bestowed upon them.

Once elected this Assembly is absolute. In its working it is fettered like the House of Commons by a very steady regard to the opinion of the electoral body outside, but in theory it is supreme. We know of nothing which could prevent it from inserting the primary tenet of Islam into its confession of faith, or ruling that 50*l.* a year should be the limit of ministerial wages, or creating ecclesiastical prizes, or revolutionizing Presbyterian formulas, or doing anything which seemed good in its own eyes and which the laymen outside could be induced to endure. It even fights its people sometimes just as the House of Commons does, as if when once constituted it was possessed of some divine right to rule, and has once or twice passed votes which the Free Church if polled head by head would, we think, scarcely have affirmed. It is in fact a true representative body based on an universal and yet selected suffrage.

How does it work? We think few reasonable Scotchmen will differ from us when we say that it represents with wonderful exactness, with great power, and with perfect honesty, everything except the higher mind of the Free Church, everybody except the few who if the governors of the Church were divinely chosen would be selected to govern. There is not a belief in the body which it does not fairly uphold, not a prejudice which it does not crystallize, not a passing cloud of thought or emotion to which it does not give some sort of expression. Even those spasms of fervour in which the Scotch genius seems occasionally to spring out of itself, to rise as if impelled by a force beyond itself into a region calmer, and wiser, and nobler than that in which the daily life of the Church is passed, are fairly, sometimes most nobly, reflected in the Assembly. It is a